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9
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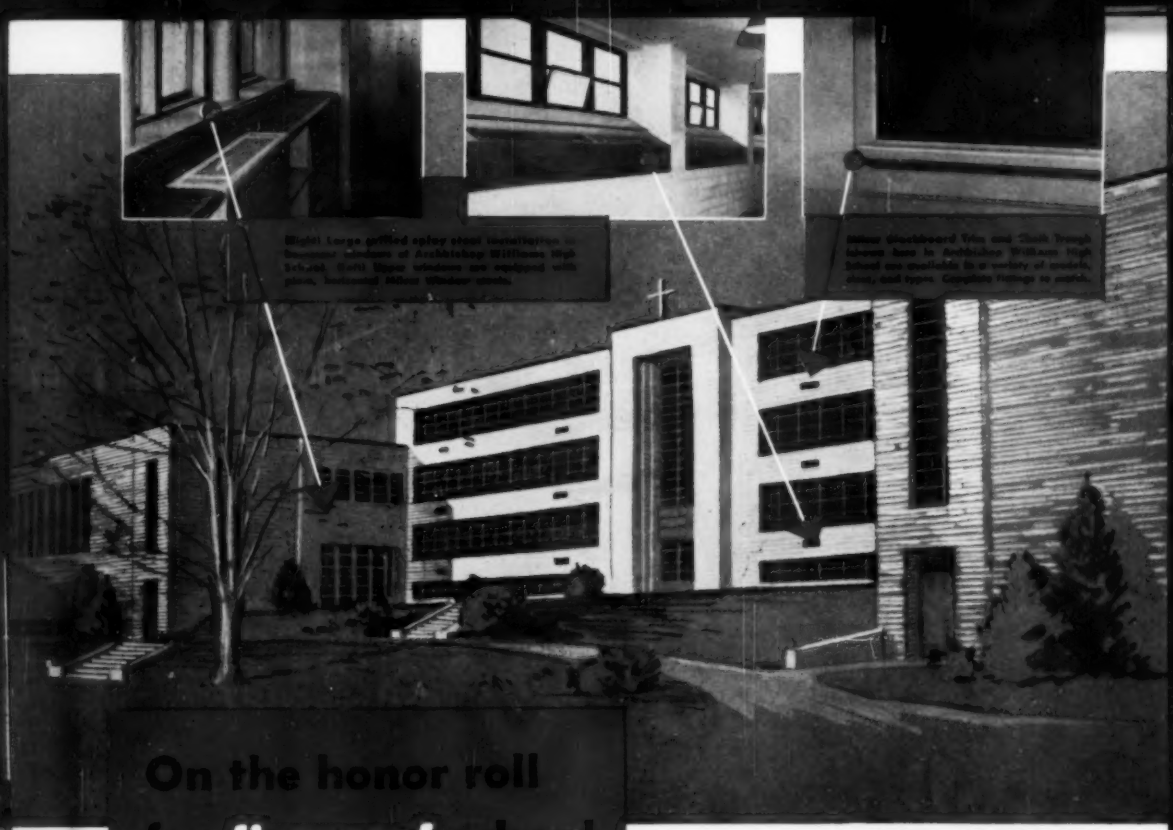
PROGRESSIVE
ARCHITECTURE



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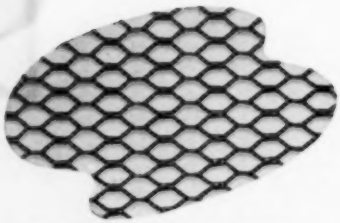

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PROGRESSIVE ARCHITECTURE

# newsletter

SEPTEMBER 1950

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Published monthly by REINHOLD PUBLISHING CORPORATION, 330 West 42nd Street, New York 18, N. Y., U. S. A. Ralph W. Reinhold, Chairman of the Board; Philip H. Hubbard, President; H. Burton Lowe, Executive Vice President and Treasurer; Fred P. Peters, Vice President and Secretary; Francis M. Turner, William P. Winsor, John G. Belcher, Gilbert E. Cochran, Vice Presidents. Executive and editorial offices: 33 W. 42nd St., New York 18, N. Y. Subscriptions payable in advance. Subscription prices to those who, by title, are architects, engineers, specification writers, designers, or draftsmen, and to government departments, trade associations, college libraries, students, publishers, advertisers, prospective advertisers and their employees—$4.00 for one year, $6.00 for two years, $8.00 for three years; to all others—$10.00 per year in U.S., U.S. Possessions, Canada, and Philippine Republic. Latin America—$10.00 for one year, $16.00 for two years, $20.00 for three years. All other foreign subscriptions—$15.00 for one year, $25.00 for two years, $30.00 for three years. Single copy—$1.00. Printed by Lotus Press, Inc., 508 West 26th Street, New York 1, N. Y. Copyright 1950, Reinhold Publishing Corp. Trade Mark Reg. All rights reserved. Re-entered as second class matter, January 22, 1947, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Volume XXXI, No. 9, September 1950. In Art Index.

- Architects and engineers as well as builders and manufacturers are trying to figure impact of Korean situation and its possible extension on their business future. Following facts seem to be true: volume of building will continue at high level, with certain categories increasing and others (principally residential) falling off; prices will continue to rise unless drastic controls are imposed; some such controls and allocations are inevitable; architects, as other businesses, will lose some younger personnel to draft.

- Housing market will be first to feel pinch. At present, sales are booming, in an inflationary manner: prospective buyers and clients are rushing to get theirs before it is too late or too costly. President Truman's original restrictions simply reduced allowable % of mortgage commitments on government insured loans, did not limit construction or sales in any other way. Yet additional regulations may be expected and architects may soon find this a difficult field in which to secure regular and profitable work.

- Increasing prices are greatest worry. Truman's first order was partly to prevent "inflationary tendencies already evident" in some materials prices. National Securities Resources Board reported last month that building costs rose 7% in first half of year, and during July and August additional price rises were announced (steel, up 1¼ to 1½ cents a pound; some flooring materials, up 3 to 7%, etc.).

- Reasons for the earlier rise were heavy building during usually slack season; some curtailment on production due to bad weather and strikes; continuing high demand despite these factors. Add to that the almost automatic inflationary rise when war and its threatened restrictions is a possibility, and the situation may well get out of hand.

- A few manufacturers, principally of home appliances, have begun their own allocation programs to distributors, both because of the increased consumer buying and because of shortages in steel for this purpose.

- In heavier construction, including public works, the cost rise has not been so great and the present tendency is more stable. Record-breaking activity continued through August in both public and private work, with costs rising at a more moderate rate than in the residential field.

- While there has been no indication to date that public works programs will be curtailed, Congress is ready to cut more from the "peacetime" budgets of government agencies as war costs rise (in early August some $350 million was lopped off budgets of nondefense agencies) and this will undoubtedly result in reduction of some building programs.

- Future U.S. and U.N. policies are still somewhat unpredictable, and the fact that there will be elections in November may have some influence on the measure of building controls requested by

(Continued on page 2)

the Administration. First political indications as Truman moved boldly on the Korean matter were that he had gained popularity; now there is some indication of a reaction the other way. Whether this will cause hesitation in the disruption of the important construction industry remains to be seen.

- The fact that there would be such disruption if too-high prices or too-drastic restrictions occur is worrying many observers. 1950 has promised a building record breaking all others, and this means that labor and industry have geared to high production rate. Sudden stoppage would throw both capital investment and employment into disastrous situation.

- Meantime, organizations in the design and building field are studying the problems involved. A.I.A. has appointed a committee under Douglas Orr and conferences have been held with government agencies on relationship of the architect to the emergency problem. Associated General Contractors and others have done the same.

- A.I.A. President Ralph Walker has issued an "alert" urging all architects to file experience records with government agencies. Many individual architectural firms are putting in applications to possible sources for work which will result from war emergency. It should be remembered, however, that there will not be the volume of industrial plant or military training center building that occurred in the '40's--too many of the World War II structures still remain.

- Miro, Bayer and Arp will do murals for Harvard's Graduate Commons, now under construction from plans by Architects' Collaborative.

- Fellowships offered by the American Academy in Rome for the year 1951 again include architecture and landscape architecture. Awards are on evidence of ability and achievement; applications must be received by February 1, 1951; information may be had from Academy's N.Y. office at 101 Park Ave.

- Ontario Ass'n of Architects recently ran a survey to discover what business men think of architects. Some results: 94.8% knew what an architect was and did; only 70.8% said that they would engage an architect for a new building; only one-fourth of those questioned knew that the architect is paid by his client.

- Yale University has established a new Department of Design with Joseph Albers as its Chairman. Albers, a Bauhaus man via Black Mountain College, has done much lecturing and teaching recently.

- Building Research Advisory Board's second "research correlation" conference will be held at Nat'l Academy of Sciences, Washington, D.C., on September 26. Subject is Fire Resistance of Exterior Non-Load-Bearing Walls. Existing criteria and regulations will be discussed as well as new principles of design, engineering and construction which raise new problems.

Stanford University in California will offer a major course in architecture this fall. Four years of work will lead to a B.A. and two more years to an M.A. Virgil Thompson, associate professor of architecture, will co-ordinate course.

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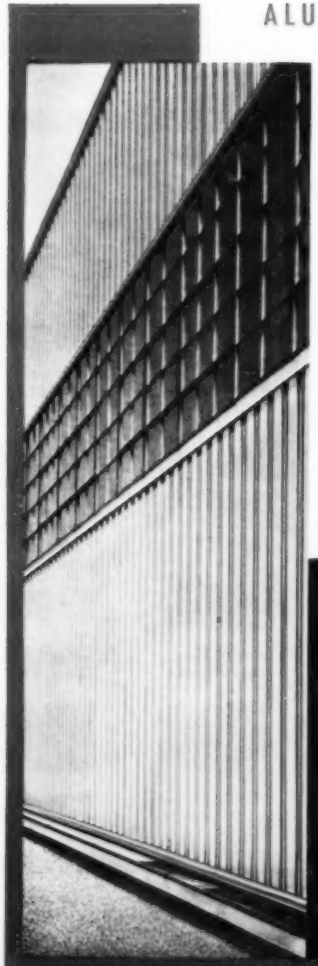

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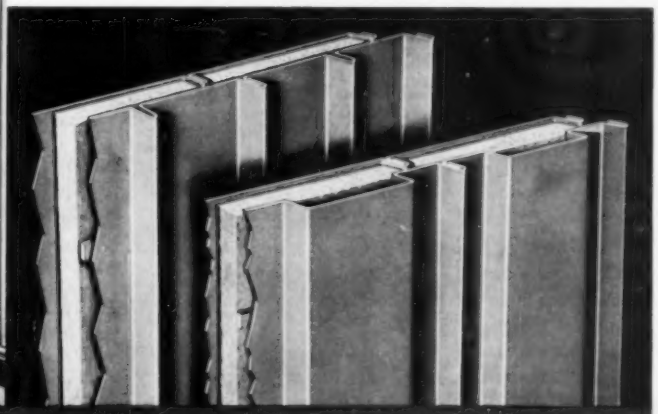

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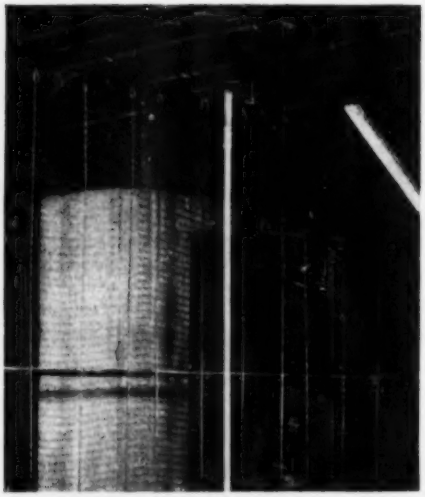

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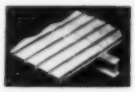

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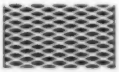

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**SCHOOL:** *Roosevelt Addition at Elmhurst, Illinois*
**MECHANICAL CONTRACTORS:** *Advance Heating and Air Conditioning Corp.*

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# p/a VIEWS

## APPROPRIATE FURNISHING

*Dear Editor:* I always find P/A stimulating and the article on elementary schools in July 1950 P/A was very interesting. In nearly every case the architect's fine work is let down by antiquated and poor school desks—quite often due to a limited budget for the nearly last article to be bought.

You may publish this print of a new school desk which I designed and developed for the John B. Parkin Associates, Architects, and The Robert Simpson Co., Ltd., one of our departmental stores.

T. E. MATTHEWS
Industrial Design
Kleinberg, Ontario, Canada

T. E. Matthews, Canadian industrial designer, used bent steel tubing, aluminum casting, and molded plywood to create this adjustable school desk and chair with swivelling seat.
*Photo: Panda*

## MOON CONTROL

*Dear Editor:* We have developed sun control, solar heat, and correct orientation as very important aspects in any architectural design in our contemporary style. I have run into a new one which I think would be of interest to architects in general, *Moon Control.*

I just completed a house which was correctly oriented for complete solar heat, with the correct overhangs, approximately 15° off East and West, and all in all I followed the generally accepted rules for planning a solar house of today. Unfortunately, when the family moved in, the problem of moon control, which I had never before run into, became important, primarily in the bedrooms. As can be readily understood, since the house was arranged so that the hot summer Western sun did not penetrate the bedrooms, they naturally faced Southeast, and it so happens that certain quarterlies of the moon now shine directly into the Northwesterly area of the bedrooms. And since the moon does not follow the same path as the sun, but more or less in a horizontal plane, it meant that the bedrooms could not comfortably have their beds on the Northwesterly walls. By a curious coincidence, in designing the house the closets and the internal arrangements of the bedrooms worked out so that the beds were on the Northwest walls.

Now the owners and children have wonderful solar heat, but also moon trouble; which raises a very important problem of internal planning of a solar house and creates the necessity for study of the whole rotation of the moon. It is another new problem for the modern architect, and perhaps a very important one.

As a final statement about this moon problem, unfortunately, unless the drapes are very thick, the penetrating white light of the moon cannot be easily shut out, and it does definitely discourage sleep. I hope that this will open some interesting discussions about this new problem. I pass it on to you.

CALEB HORNBOSTEL
New York, N. Y.

## LAMPS AS SCULPTURE

*Dear Editor:* The article on "Current Trends in Lamp Design" by Dorothy Q. Noyes in July 1950 P/A contains much truth, but there is more to lamps and lighting than stated. Biologically and psychologically speaking the soundest "lighting" is that of the outdoors—harsh lights, strong dark shadows, and many shades of dusky semi-darkness. This semi-darkness (innumerable shades of gray) is the essential plastic background for "pools" of light and darkness. They are difficult to create by the use of opaque metal reflectors. Such results can be achieved only by a translucent lampshade or light reflected from ceiling or walls. Another failing of unshaded reflectors is that people always move into their direct aura of light, and get more or less blinded. I think most of the lamps illustrating Miss Noyes' article have this potential shortcoming.

Any three-dimensional object must above all satisfy as sculpture, if we are to derive lasting esthetic enjoyment from it. The stated function of the piece remains secondary.

It seems to me, from Miss Noyes' article, that whereas the past convention of a lamp was "a base and a shade" the type she favors is a "base and a reflector." To my mind neither of these conventions make satisfactory light sources. If a visible light-giving accessory is necessary in an interior at all, I think it should be a sculptural unit giving the type of light which the occasion requires. But an esthetic entity above all. The design of such "sculpture which lights" is as much in the future as the first design of a car which would be sculpture expressing the main attributes of a speeding cubicle on wheels.

In conclusion, I submit photos of several of my lamps which have been widely accepted by decorators because they combine sculpture with efficient lighting.

A. ROSTI
New York, N. Y.

## p/a VIEWS

(Continued from page 9)

### T-SQUARE TO HAMMER

*Dear Editor:* During the construction of a new studio-residence, I closed up shop for six months and spent one of the most enjoyable vacations I can remember, swinging a hammer and working off an advanced case of designer's derriere. One thing I can recommend heartily for all designers: taking a hand in building from one of their own designs.

Details which look awfully good on the drawing board don't always go together as simply as they were planned. And the cost of some of those "simple little details"—ouch!

WILLIAM T. DREISS
North Hollywood, Calif.

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### THE ROUTINE CONTRACT

*Dear Editor:* From the equanimity with which your Bernard (IT'S THE LAW) Tomson views the possibility of a change in our customs which would require all building contracts to be prepared by lawyers, and from the cheerfulness with which he in effect advocates this change, one would almost come to the conclusion that he is a lawyer.

The original basis of all laws was, as students of history know, customs; and this is still true in a large measure. Law which flies in the face of time honored custom, law which is thus deprived of the support of public habits and thought, is doubtful both in its propriety and its chances of enforcement. If, then, it were considered desirable to change that habit of law by which many building contracts are prepared with the advice of an architect, the first step in that direction would be to change the custom; the fact thus changed, legal recognition of the change would be a mere form. Tomson advises the change in the custom. The custom then changed, would it be at all surprising if judges recruited from the legal profession should find that this work should be done by the legal profession, which would then be actually doing it?

Of the practical advantages or disadvantages of such a course to the public—of its broad philosophical implications—his analysis yields not a trace.

Contracts made by parties who normally employ lawyers to do or to check this work—parties who are aware that their affairs are so complicated as to require the services of a lawyer—are not in question; such contracts are already prepared by lawyers. The contracts here under consideration are those considered to be of a routine sort, which involve no known moot points.

It is obviously not feasible to have lawyers prepare all contracts. When we enter a restaurant and eat lunch, we enter into a contract, as becomes clear enough if we fail to pay the check; yet even the most meticulous of us do not take our lawyers to lunch with us on this account. Every exchange of our daily lives—the buying of a pair of shoes, or a ride on a street car—the hiring of a doctor to bring us into this world, or the hiring of an undertaker to usher us out of it—involves a contract.

Indeed, that inventive advance which is the glory of our age, which permits and requires such increased specialization in production, has so largely increased the division of labor in our time, that we each find ourselves producing less and less of what we use for ourselves, and more and more largely trading our products for those of our fellows; and each such trade involves a contract, written or verbal; specific or implied. The number of such contracts into which we enter is thus prodigiously increased from those required by the life of a Colonial farmer,

(Continued on page 12)

# Virginia Metal Products'

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## p/a VIEWS

(Continued from page 10)

for example. A much smaller proportion of them can admit of the services of a lawyer, if some of us are to be left over for other than legal work.

And is this not the true criterion? "Where does the public interest require that the line be drawn?" is the large question involved.

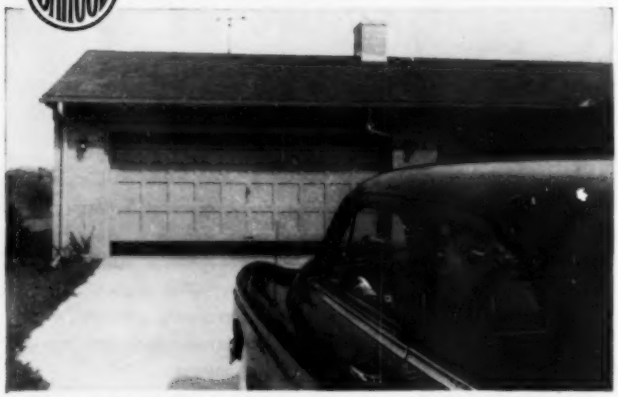
Does a routine contract, prepared for the Contractor and Owner by the architect, customarily provide a clear evidence of the point at which their minds have met? If it does, the public should find no need to waste the time of a lawyer in the process, or the time of others in familiarizing him with the facts in the specific case. To do so would be to waste just so much of human productive capacity which could be busy elsewhere to our greater mutual advantage.

Competent lawyers need no featherbedding.

HENRY TIDEMAN
Chicago, Ill.


BARCOL

LOOK FOR THIS MARK OF QUALITY



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### CLIENT TO ARCHITECT

*Dear B——:* As a man who will handle thousands of clients in years to come, you may be interested in the emotions which the making of a house evokes in me. I would never have thought a house as small as this could bring feelings as large—and I don't know why this is. Partly, I suppose, it's because there is something awfully final about building a building. It stays the way one puts it. And if one puts it wrong at the beginning, well, there it is: giving you an ugly leer every time you look at it.

It puts a man on record as a person with a mean, cramped, careless, little soul, who didn't care enough to take the pains to make what he built beautiful. Or it memorializes him as a person of spirit, imagination, taste, and elegance, if he takes the pains to produce beauty. Thus, there is a strong moral duty not to clutter the universe, not to offend one's fellows by laying across their daily path an unsightly object: and a chance, which few men ever have, to create beauty.

These are some of the reasons why we feel we must have an architect.

A CLIENT

### IT'S THE LAW

*Dear Editor:* Tomson's lucid explanation (July 1950 P/A) of the pitfalls; the citation of specific cases and the classification of all States under four general categories required research in which few lawyers and probably no architects or engineers had previously indulged. Tomson, in composing this series of articles, and P/A, in publishing them, are performing a highly valuable service to the entire profession. It is quite in keeping with the connotation of "Progressive" in the title of your publication.

FRANK W. BAIL
Bail, Horton & Associates
Fort Myers, Fla.

### COMPETENT GUIDANCE

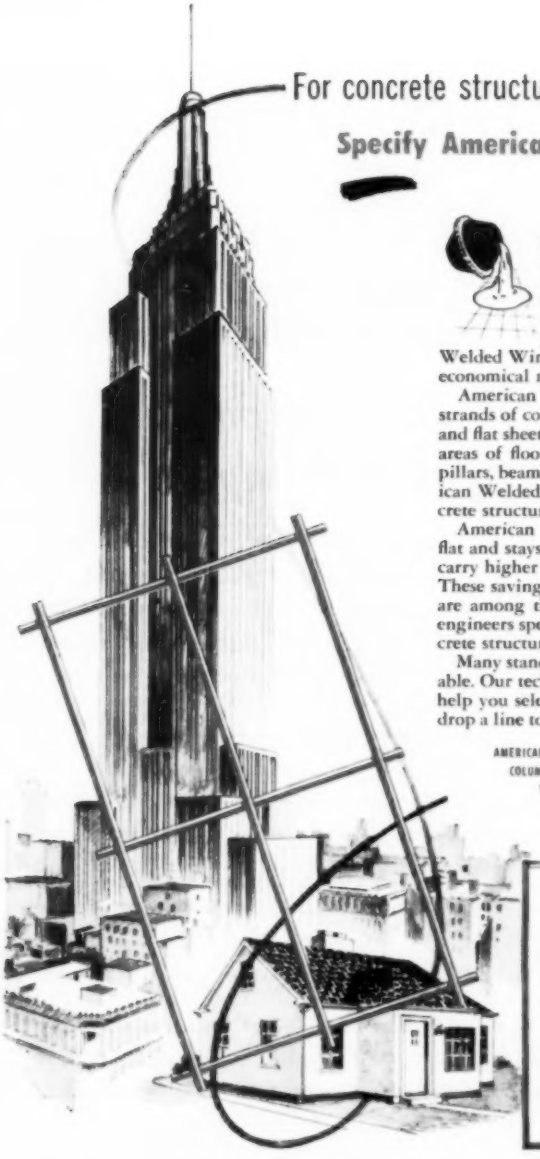
*Dear Editor:* Certainly the speculative house field is large and important and everything possible should be done to see that competent architectural hands guide it. (July 1950 P/A.)

Your interest in this field and your reporting on it are appreciated. It is a vast subject and we would like to see you carry through with it.

WINSTON ELTING
Schweikher and Elting
Roselle, Ill.

## For concrete structures large and small

## Specify American Welded Wire Fabric





From the world's largest building to small homes—in schools and hospitals, in churches, stores, highways, bridges and viaducts—many of the countless uses of concrete construction are made possible by welded wire fabric reinforcement. And in an impressive number of them you will find American Welded Wire Fabric. It has proved to be the most efficient and economical reinforcement for all sorts of concrete construction.

American Welded Wire Fabric, with its many closely spaced strands of cold-drawn high yield point steel, comes in long rolls and flat sheets. Both provide continuous reinforcement for large areas of floors, walls and roofs. They can be fitted to girders, pillars, beams and other irregular structural shapes. With American Welded Wire Fabric you can reinforce all parts of all concrete structures.

American Welded Wire Fabric can be placed quickly, lies flat and stays in place during pouring. And, since thinner slabs carry higher allowable stresses, you need less steel, less concrete. These savings in construction time, in labor and material costs, are among the important reasons why so many architects and engineers specify U·S·S American Welded Wire Fabric for concrete structures of all sizes.

Many standard designs and sizes of fabric are now readily available. Our technical staff will be glad to supply complete data, to help you select the fabric best fitted to your requirements. Just drop a line to the nearest office on our list, there is no obligation.

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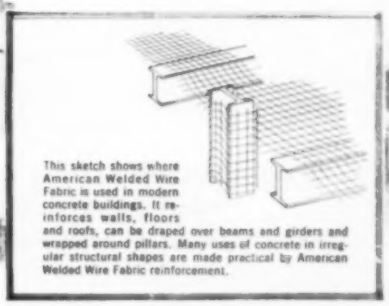

This sketch shows where American Welded Wire Fabric is used in modern concrete buildings. It reinforces walls, floors and roofs, can be draped over beams and girders and wrapped around pillars. Many uses of concrete in irregular structural shapes are made practical by American Welded Wire Fabric reinforcement.

*Every type of concrete construction needs*

**AMERICAN WELDED WIRE FABRIC**
*reinforcement*

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UNITED STATES STEEL

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# PROGRESS REPORT

Photos: Walter Civardi

1. "Living in the City"

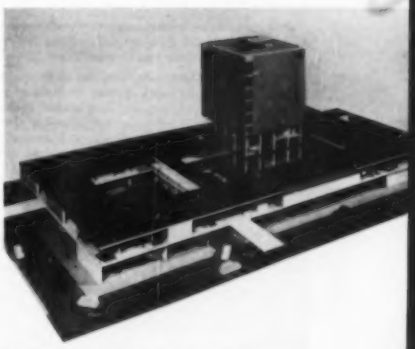
## training future civic groups

A circulating exhibition depicting the contemporary standards of design for urban living, sponsored by New York Chapter, A.I.A., and the Board of Education of New York, is stimulating thousands of high school students to analyze their own neighborhoods in terms of good design, reports Olindo L. Grossi, chairman of Department of Architecture, Pratt Institute, who was awarded the Arnold W. Brunner Scholarship last year to prepare the educational display. Since it started to tour the 54 academic high schools of New York last fall, some 18,000 students in five high schools have eagerly studied the models and charts of city living standards—and made their own notes for comparison with existing conditions.

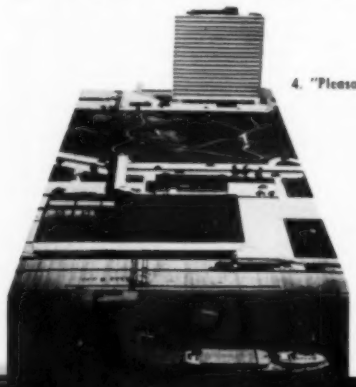
The exhibition was suggested by Deputy Supt. Frederic Ernst of the New York Board of Education, to bring to the students "an introduction to architectural values; an appreciation of the need for planning; an urgent call for personal participation in the neighborhood and city planning for better housing, better working conditions, better living . . ." Given the award from the Brunner Fund, Grossi created the effective show with assistance of R. D'Agrosa and R. Corbelletti, Pratt architectural students, drawing in part on the urban redevelopment theses already prepared by R. Bentel and H. Horowitz, also of Pratt Institute.

Although designed primarily to arouse interest of high school students, as the inheritors of the New York planning chaos, the shows at the high schools are open to the public. In addition the models and

2. "Living in the Country"



3. "Inter-related Shopping Center"



4. "Pleasant Office and Factory Conditions"

(Continued from page 15)

charts were displayed earlier this year at the convention of Eastern Arts Association in New York. The educational project was also subject of a Manhattan Spotlight TV program in the fall. It is on view this month at Washington Irving high school, New York, and will be circulated for several years.

Sponsors of the exhibition have been gratified by the appreciation evident among students and teachers. At Bushwick high school, the students were inspired to make a layout of their neighborhood and replan the area for modern living. The critical look at familiar surroundings is a valuable result of the project, Grossi points out; adding that most of the students have taken the exhibition designs as suggestions for new designs rather than copy models. (*Attention: professional copyists.*)

Featured is a large model, "Living in the City," which contrasts the well planned area of a modern urban neighborhood with the grid of familiar city blocks (Figure 1). The proposed neighborhood has an adequate number of apartments, green and play areas nearby and recreational facilities to develop the friendliness and social awareness so necessary to a healthy stable community. Shops, schools and some light industry are all within walking distance and are located on a superblock where main roads are at the periphery. A two-level scheme is suggested, with pedestrian overpasses, through automotive highways and off-street areas for parked cars and delivery trucks. An ideal apartment building is shown which offers the sense of space so often lacking in our present-day scheme. Various methods are employed to achieve this space: large windows, projected and angled to gain long vistas, balconies for private outdoor living, and the elimination of certain unnecessary doors and partitions. All have cross-ventilation, sunshine and a comfortable, efficient layout.

A guide chart explains that it is the responsibility of the students, who will be our citizens in the future, to bring forward some sort of action to achieve this almost utopian city, as opposed to New York's present chaotic condition with its traffic and parking problems and its failure to adjust to its fast growth.

●

Another model, "Living in the Country," shows housing for 4000 to 5000 people and has three types of homes to meet the needs of different families, small and large, old and young (Figure 2). The fact that they are all in a unified residential section and the fact that the play areas, elementary school, nurseries, churches and the shopping center are conveniently and safely located goes a long way toward reducing accidents, noises and gas fumes.

A factory site has been carefully planned, being in an isolated location and in the path of prevailing southwest winds which protect the town from industrial smoke, dust and smells. Planning has also made expansion feasible in areas near the railroad stations which easily permit repetition of the complete community there.

Sometimes random, isolated shops prove tiring to the shopper and are a great economic gamble to the investor. The third model therefore displays a unique shopping center consisting of an organized interrelation of shops (Figure 3). The plan includes recreation, restaurants, rest facilities and supervised play areas for children. It

(Continued on page 19)

THE *Sedgwick* ROTO-WAITER

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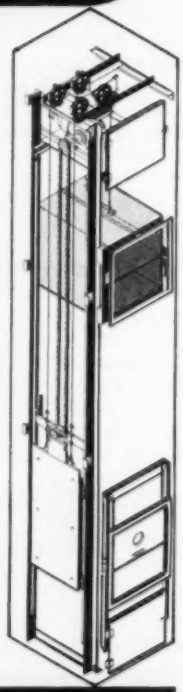
Dimension table lists three standard *counterweighted* Roto-Waiters. A Sedgwick *uncounterweighted* Roto-Waiter (with car size 24"x24"x36", 150 lbs. capacity) is also available when the dumb waiter is to be installed for undercounter use.



| STANDARD ROTO-WAITER DIMENSIONS | | | |
|---|---|---|---|
| Size No. | 2C | 3C | 5C |
| Capacity, lbs. | 200 | 300 | 500 |
| Car width, in. | 24" | 30" | 36" |
| Car depth, in. | 24" | 30" | 36" |
| Hoistway width, in. | 33" | 39" | 45" |
| Hoistway depth, clear in. | 27" | 33" | 39" |
| Hoistway depth, including doors, in. | 29" | 35" | 41" |

***Remember, too—the Completeness of the Sedgwick Line That Enables You to Meet Every Client's Requirement . . .***

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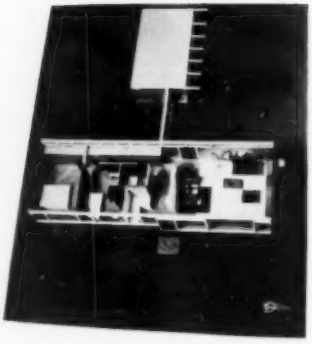
p/a

## PROGRESS REPORT

(Continued from page 16)

is suggested that the modern shop have an open "visual" front, perhaps recessed from the building line. The interiors should have wide aisles, open spaces and a lounge character.

A chart explains that city office buildings need not be jammed together and the antithesis is illustrated in a model which approximates ideal conditions in an office building and factory (Figure 4). The office building affords light, ventilation and sun control, with no clutter and congestion to cause waste, fatigue and undue expense. Large areas may be subdivided or rearranged to meet the needs of large or small businesses. The factory is also planned for maximum efficiency and future rearrangement of space.



5. "Small House Studied"

As the desire of nearly every American is to own a house of his own, the model shows a comfortable and economical small home which eliminates useless and expensive features (Figure 5). The emphasis is instead placed on imaginative design, and the use of attractive materials, color and textures, and pleasant living conditions.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## NOTICES

### AWARD

KIVETT & MYERS, Architects, of Kansas City, Mo., received the Medal Award of the Kansas City Chapter of the A.I.A. for the exterior design of Macy's, Kansas City, cited as the best example of commercial design for the year 1949.

### EXHIBITION

The TRIENNALE OF MILAN invites artists, craftsmen, and art manufacturers of all countries to participate in the Ninth International Exhibition of Decorative and Industrial Arts and Modern Architecture to be held in Milan from spring to autumn 1951 by exhibiting works in which modern civilization finds its own expression. Awards will be conferred by an International Jury. Address: Palazzo dell'Arte, Milan.

### CONVENTION

November 9-11, 1950: Annual Convention of the LOUISIANA ARCHITECTS ASSOCIATION and annual meeting of Chapter officers of the Gulf States District, New Orleans, La. A photographic exhibit of the work by Louisiana architects will be a feature of this meeting.

### CORRECTION

We regret having misspelled Architect CLAYTON KANTZ's name in June 1950 P/A (see page 12, under "New Practices, Partnerships").

# Write for this Anaconda bulletin on FLAT-LOCK SOLDERED SEAM COPPER ROOFING

This Anaconda bulletin contains construction details and reason-why data on the use of cold-rolled (cornice temper) copper in flat-lock, soldered seam work.

## These are the subjects it discusses:

*Type of copper to use.*
*Recommended size and weight of sheets.*
*Allowances for expansion and contraction.*
*How to form and install roofing squares.*
*Expansion batten construction.*
*Batten construction at intersections.*
*Joining flat seam roofing with other types.*

Also included is a complete specification for flat-lock seam copper roofing with 16 in. x 18 in. roofing squares. Be sure to get your copy of this helpful new roofing bulletin. Ask for Anaconda A.I.A. File No. 12-C. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

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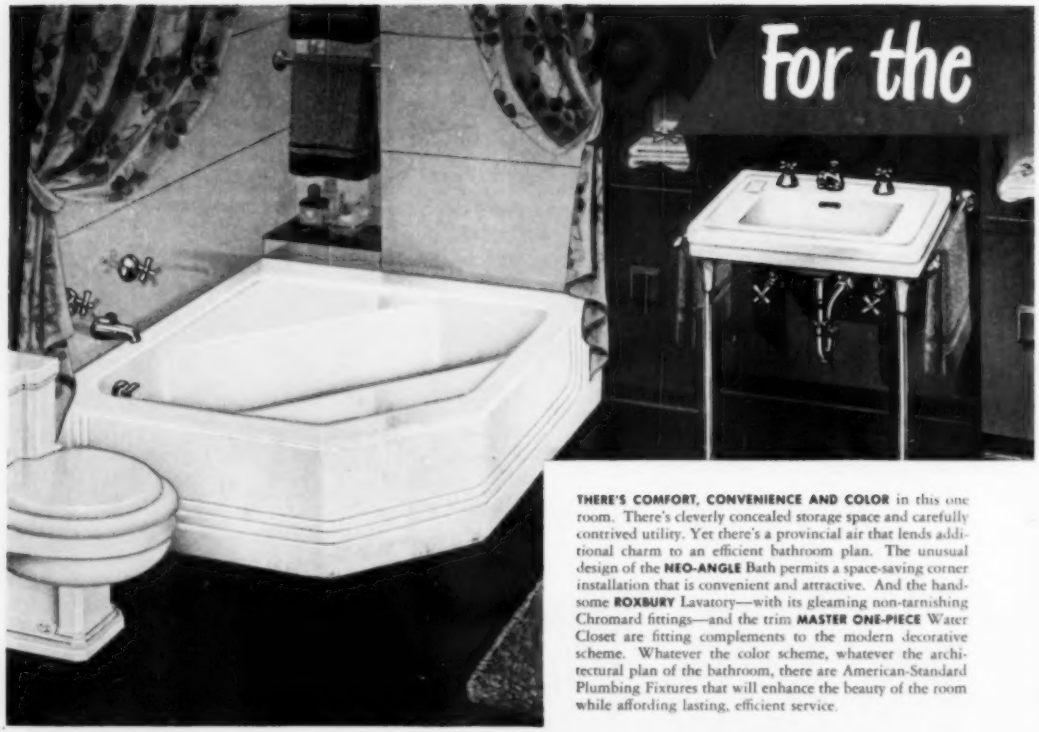


**THERE'S COMFORT, CONVENIENCE AND COLOR** in this one room. There's cleverly concealed storage space and carefully contrived utility. Yet there's a provincial air that lends additional charm to an efficient bathroom plan. The unusual design of the **NEO-ANGLE** Bath permits a space-saving corner installation that is convenient and attractive. And the handsome **ROXBURY** Lavatory—with its gleaming non-tarnishing Chromard fittings—and the trim **MASTER ONE-PIECE** Water Closet are fitting complements to the modern decorative scheme. Whatever the color scheme, whatever the architectural plan of the bathroom, there are American-Standard Plumbing Fixtures that will enhance the beauty of the room while affording lasting, efficient service.

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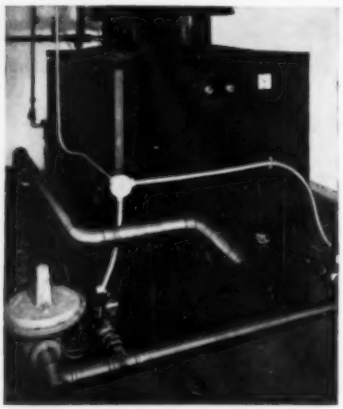

**DEPENDABLE, AUTOMATIC HEATING** is furnished the Montecito Elementary School in Martinez, California, by this **STANDARD** Gas Boiler. The heating surfaces, burners, controls and other essential features are coordinated to assure maximum output with lowest operating and maintenance cost. Sections are carefully machined for gas-tight joints. Architects: Bamberger & Reid, San Francisco.

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**ALL THE CONVENIENCES OF A RESIDENTIAL BATHROOM** are in this compact bathroom of Eaton's Santa Anita Hotel on U.S. Highway 66 near Pasadena, California. The **MASTER PEMBROKE** Bath is made of rigid cast iron for durability, and finished with a heavy coating of enamel for beauty and ease of cleaning. Lower sides, flatter bottom make bath and shower more convenient. The **CADET** Water Closet is a close-coupled closet combination made of permanently non-absorbent genuine vitreous china. Architect & Building Contractor: Harry Werner.

**LARGEST OFFICE BUILDING** in Southern California—the new $11,000,000 home of General Petroleum Corporation in Los Angeles. The building is distinguished by its hundreds of wall-supported plumbing fixtures . . . all American-Standard. These quality products are in keeping with the scores of engineering and architectural features that make this one of the nation's most modern structures. The wall-supported plumbing fixtures—which include **FENWICK** and **LUCERNE** Lavatories, **GLENCO** Water Closets and **WASHAL** Urinals —make for neater, cleaner rooms. Architects: Wurdeman & Becket, Los Angeles.

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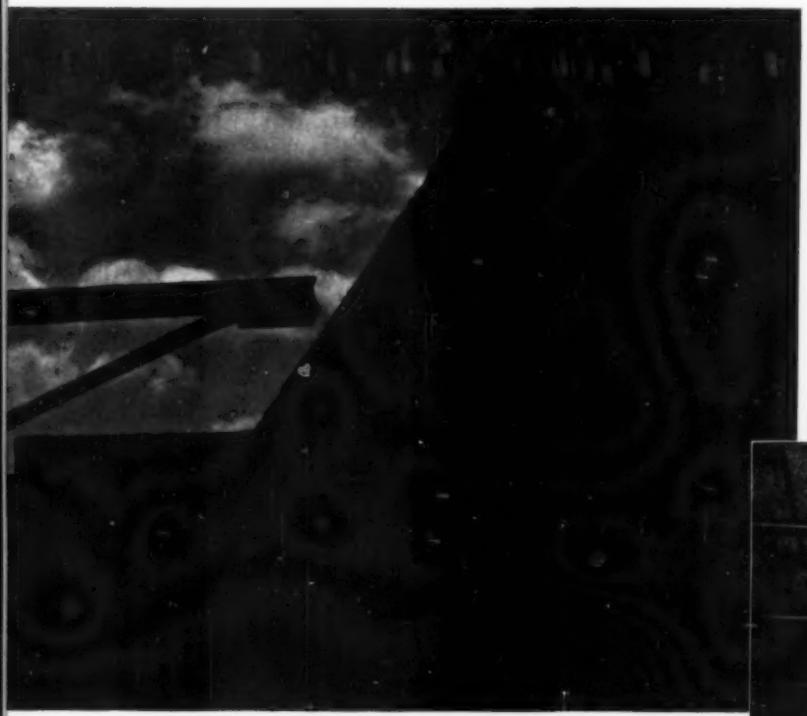
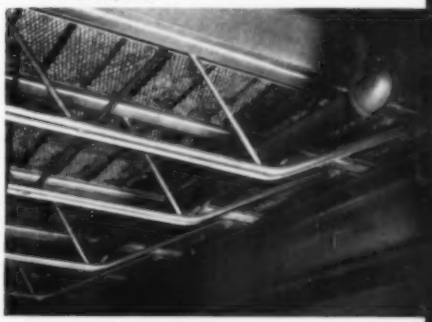


Economical — Ceco Open-Web Steel Joists are self-centering. The form work for the concrete slab—usually metal rib lath or steeltex—rests directly on the steel joists without other support from the underside.

# Open-Web Steel Joists

Conceals Conduits — Ceco Open-Web Steel Joists provide a ready means of concealing ducts, wiring and piping. Space is saved by direct attachment of ceilings to joists. Time and materials are saved, too.



trades can be on the job doing their special work such as installing steel windows, electric wiring, plumbing and heating. So, when speed gets the call, specify CECO OPEN-WEB STEEL JOISTS. They are fabricated to exact size in the factory, come to the job tagged, ready to install... provide low cost fire resistive buildings. Ceco assures you fast service from five plants: Birmingham, Chicago, Houston, New York and Wheeling, W. Va.

**CECO STEEL PRODUCTS CORPORATION**

**General Offices: 5601 West 26th Street, Chicago 50, Illinois**

Offices, warehouses and fabricating plants in principal cities

*makes the big difference*

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

# Don't be a FIXTURE PICKER!

**No wonder he's worried.** He's picking "fixtures". You know fixtures won't solve lighting problems—*but how many other people do?*

It takes expert planning by qualified engineers to solve lighting problems and give you the Best Buy in Lighting.

Whether you plan lighting, buy lighting, or install lighting, the services of a Westinghouse Lighting Engineer are available to you.

An introduction to one of the many fixtures which Westinghouse offers to meet your demands can be had by writing for Booklet B-4442, Westinghouse Electric Corporation, 511 Wood Street, Box 868, Pittsburgh 30, Pennsylvania. J-04282-A

Westinghouse

PLANNED LIGHTING PAYS

## WHY SHOULD INSULATION HAVE AN INTEGRAL CONTINUOUS VAPOR BARRIER ?

Condensing vapor has always been a problem in building. But in today's tighter-built houses—with such modern improvements as air conditioning and humidifying equipment . . . extra bathrooms . . . automatic clothes washers and driers . . . it is more of a problem than ever! That is why insulated construction *must* be protected from condensing vapor. Condensation, if it occurs within a wall, may result in wet insulation, reducing its efficiency, and may lead to decay, paint blistering, and other damage.

Balsam-Wool is *completely* protected from condensing moisture by an integral, continuous vapor barrier. This vapor barrier—the asphalt coated and saturated liner of Balsam-Wool—meets government specifications requiring a barrier on the warm side of the insulation having a permeability not exceeding 1 grain per square foot per hour at a vapor pressure difference through the material of one inch of mercury.

What's more, Balsam-Wool adds an EXTRA safety factor beyond requirements—a tough, cold-side liner which reduces convection through the insulating mat, reduces air infiltration, gives additional support to the mat, and helps protect it against rough handling and the penetration of free water during the construction process.

Years of research and constant testing are behind every Balsam-Wool feature—and no other insulation contains all of them:

- **Continuous integral vapor barrier**
- **Sturdy wind barrier**
- **Double air spaces**
- **Special spacer flanges**
- **Double bonding of mat to liner**
- **Rot and termite treatment**
- **Highly fire retardant**
- **Rigid quality control**

Send for Balsam-Wool Application Data Sheets, containing hard-to-get information you'll want for your file. A complete set of these sheets is yours for the asking, mail the coupon today!

# *Balsam-Wool**

**SEALED INSULATION**

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St. Paul 1, Minnesota

Please send me a set of Balsam-Wool Application Data Sheets

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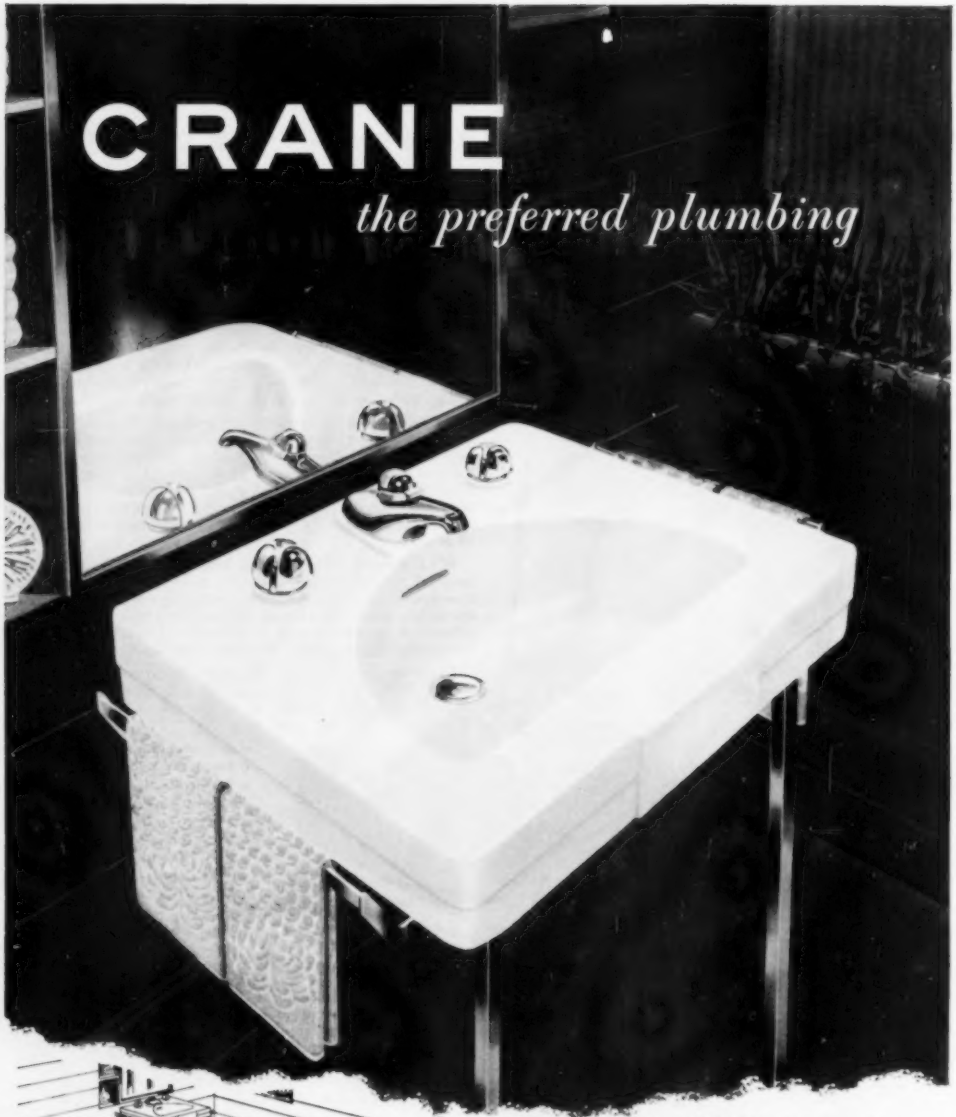
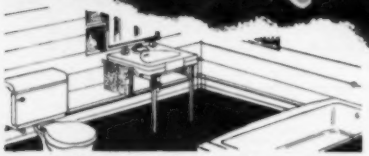
# CRANE

*the preferred plumbing*





*Styled to match the Diana Lavatory: Criterion Closet, Criterion Bathtub.*

THE CRANE DIANA LAVATORY, of vitreous china, in white and eight Crane colors. Chromium-plated trim includes easy-to-operate *Dial-ese* controls. Towel bars optional. Sizes: 24, 27, 33 inches. Consult your Crane Branch or Crane Wholesaler.

# CRANE

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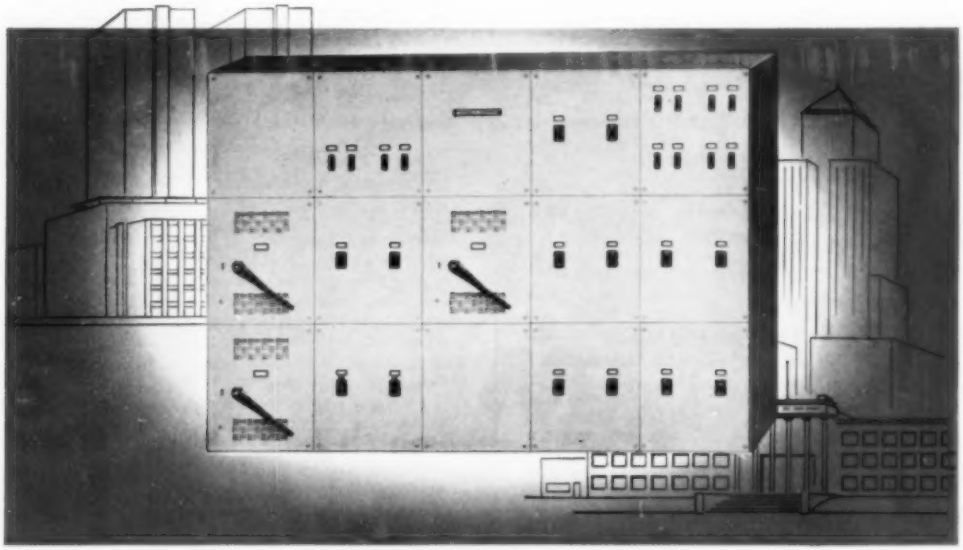
*PLUMBING AND HEATING*
*VALVES • FITTINGS • PIPE*

YOU CAN BE **SURE**.. IF IT'S

Westinghouse



# New *STANDARDIZED* Building-type Switchboards

## *Cut Planning Time*

Switchboard planning for offices and other commercial-type buildings is greatly simplified with the NEW Westinghouse *Standardized* Building-type Switchboard.

Unitized construction eliminates special design problems . . . yet their complete flexibility gives you all the advantages of "custom built" units.

Factory-assembled, wired and tested, they may be shipped as a single unit and quickly placed in service. However, if desired, they can be shipped as individual units and quickly reassembled on the job.

They are specifically designed to feature low-cost circuit breaker protection by means of Westinghouse nofuze "De-ion" type AB circuit breakers for ratings through 600 amperes. For ratings above 600 amps, Westinghouse type DA breakers are used. Get the complete story. Call your nearest Westinghouse office or write for D. B. 30-990, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40380

Westinghouse

SWITCHBOARDS

# America's best fuel buy is Anthracite!

## HERE'S WHY

### Hard Coal is a better, more efficient fuel because:

**1. You enjoy greater COMFORT with STEADY Hard Coal Heat**

Other fuels heat in "bursts," result in varying temperatures. But Hard Coal fire gives you steady, even, dependable heat *all the time!*

**2. You get HEALTHFUL heat with Hard Coal—NOT "up and down" heat—NO "cold pockets"**

Widely varying temperatures you get with other fuels create cold areas in home—"cold pockets"— a danger to health. (Cold pocket behaves like a vacuum—draws air to itself, causes *drafts.*) But with STEADY Hard Coal heat you're SAFE!

**3. Hard Coal Heat is CLEANER heat—leaves no greasy film on drapes or furniture—no odor**

Hard Coal *burns* more completely and cleanly than other fuels. No greasy deposit or oily smell with Hard Coal . . . no soiled furniture or curtains. Lower cleaning bills!

**4. Hard Coal CAN'T SMOKE under any conditions**

Hard Coal is the perfect fuel—impossible for it to smoke. Makes for cleaner homes, cleaner neighborhoods!

**5. SAFE heat . . . no worries about possible explosions**

People with other fuels often worry about "something going wrong"—leaks or explosions—perhaps during the night or when there's nobody home. But not people in Hard Coal homes—they enjoy peace of mind.

**6. You can STORE a full winter's supply—in advance**

With Hard Coal, you don't have to worry about bad weather holding up mid-season deliveries—you can fill your bin ahead of time, with enough fuel for *the whole winter!*

**7. Undreamed-of CONVENIENCE is yours, with modern AUTOMATIC Hard Coal equipment**

You just set the thermostat and forget it—fuel-feed and control are automatic! Hard Coal heat is *modern* heat!

**8. With automatic equipment, Hard Coal SAVES you up to $125 a year**

You burn the most economical *sizes* of Hard Coal . . . get the most efficient automatic combustion!

### Now—Hard Coal Heat is AUTOMATIC with modern equipment!

**Gives amazing CONVENIENCE and SAVINGS**

Now everyone can have AUTOMATIC heat at a price they can afford. New automatic Anthracite equipment feeds itself with fuel right from bin, removes ashes automatically. Thermostatic control—set it and forget it! Year-round hot water too! 100% clean, compact equipment turns basement into a "living area"! It's the STEADIEST, healthiest, coziest heat of all. Fuel costs FAR LESS—because the equipment burns the *most economical sizes* of Anthracite! Savings up to $125 a year pay for equipment! Write Anthracite Institute, 101 Park Ave., N. Y. 17, N. Y.

**ANTHRAFLO** . . . A low-priced, efficient furnace-burner unit. Compact. Feeds self from fuel bin. Rugged construction, no complicated parts to get out of order. Completely automatic, silent, clean. *Burns MONEY-SAVING SIZES of Anthracite* (Anthraflo models also available for steam and hot water systems.)

**ANTHRATUBE** . . . A complete boiler-burner unit with induced draft. Delivers maximum heat with hard coal. Compact, neat-looking. Completely automatic from coal bin to ash removal. Provides year-round hot water. Highly efficient. *Burns MONEY-SAVING SIZES of Anthracite!*

**MODERN HARD COAL STOKERS** specially designed in complete boiler-burner units (*such as Motor Stokor, Electric-Furnaceman and others*), offer high efficiency, are smaller in size and greater in economy of operation. Completely automatic from bin feed to ash removal.

Modern conversion stokers can be quickly installed in your *present* boiler or furnace. Stoker automatically feeds the coal and removes the ashes.

## ANTHRACITE (HARD COAL) INSTITUTE

MENGEL
means QUALITY
in Hollow-Core
FLUSH DOORS
1 Balanced seven-ply construction to provide controlled reaction in changing weather conditions.
2 Hardwood construction throughout—stronger, more durable, free from grain-raising, more easily and economically finished.
3 Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.
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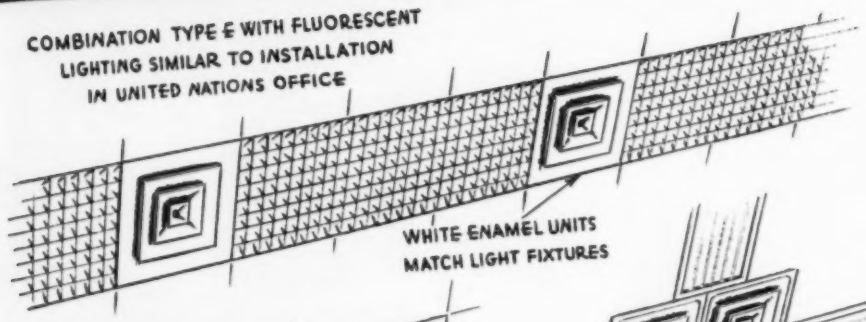
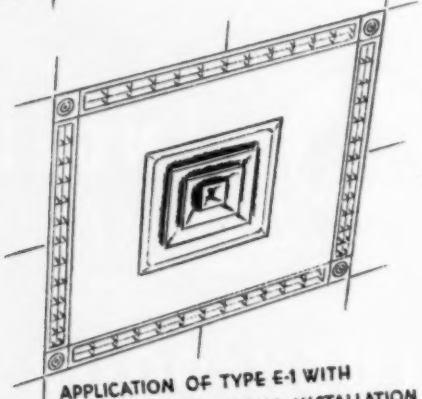
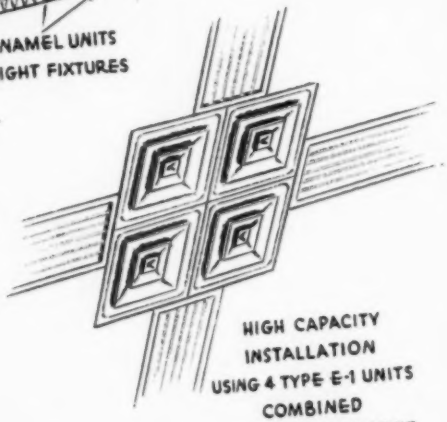
5 Precision key-locked dove-tail joinings of stiles and rails add strength and stability.
6 Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory—prefit to standard book sizes.
7 Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.
8 Mengel Flush Doors are economical—no mouldings to paint—no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish—easier to clean and longer-lived.
Write for complete specifications. Use the coupon.
Also see—
MENGEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.
The Mengel Co., Plywood Division
2515 South Fourth Street, Louisville, Ky.
Gentlemen: Please send me, without obligation, full specifications on ☐ Mengel Hollow-Core Flush Doors; ☐ Mengel Stabilized Solid-Core Doors.
Name
Street
City
State

# ideas *for using* ANEMOSTAT AIR DIFFUSERS


COMBINATION TYPE E WITH FLUORESCENT LIGHTING SIMILAR TO INSTALLATION IN UNITED NATIONS OFFICE
WHITE ENAMEL UNITS MATCH LIGHT FIXTURES




Anemostat Air Diffusers offer unlimited design possibilities. They can be used in regular, acoustical and egg crate ceilings . . . combined with all types of lighting fixtures . . . in commercial, industrial and home applications. Anemostat Air Diffusers provide uniform diffusion throughout the entire conditioned area. They eliminate harmful drafts, stale air pockets and equalize temperature and humidity. New Selection Manual contains complete application and specification data. Write for your copy.

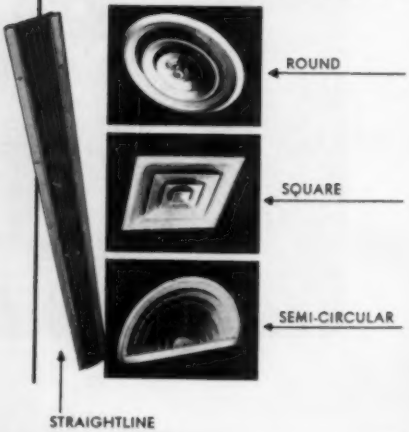
**"No air conditioning system is better than its air distribution"**

**ANEMOSTAT®**

**DRAFTLESS *Aspirating* AIR DIFFUSERS**

ANEMOSTAT CORPORATION OF AMERICA, 10 EAST 39th STREET, NEW YORK 16, N. Y.
REPRESENTATIVES IN PRINCIPAL CITIES

**ANEMOSTAT** offers maximum design possibilities because only Anemostat Air Diffusers come in all these shapes




AC 1360

# Cemesto* speeds work, cuts cost of building interior walls!

**Cemesto combines amazing structural strength, high insulation value, interior and exterior finish—all in a single fire-resistant panel that's quick and easy to apply!**

You simplify construction, save time, reduce both labor and material costs . . . when you build interior walls with 4' 0" wide Cemesto Insulating Structural Panels. No other single building material combines all these advantages and economies:

Cemesto Panels give you remarkably strong, durable, handsome partition walls. They save space, *increase usable room area*—because a single thickness of Cemesto replaces ordinary walls up to 6" thick.

Cemesto Panels are quick and easy to put up, thanks to new-type metal moldings and "snap-on" fastenings now available. These do away with unsightly projecting battens, provide more attractive, flush-type partitions.

What's more, Cemesto Panels require no decoration. Left natural, their smooth, stone-gray surfaces provide permanently maintenance-free interior and exterior finish, with a light-reflection value of 58%. Cemesto Panels have high *built-in* thermal insulation value. Used on both sides of wood framing they reduce transmission of noise from room to room. And they are easily demountable, *fully salvageable!*

### Cemesto Panels Offer Many Unique Advantages

Cemesto Panels are strong, rigid, pre-formed units made of laminated panels of Celotex cane fibre insulation – to which hard, non-combustible cement-asbestos facings are bonded on both sides by a highly vapor-resistant, moisture-proof adhesive.

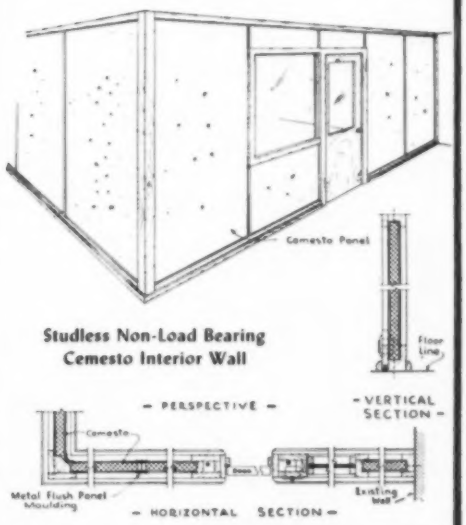
They are light and easy to handle, yet have amazing structural strength. And their insulating core is protected by the exclusive patented Ferox* Process against fungus, dry rot and termites.

Widely used for curtain walls and roof decks, as well as partition walls, Cemesto panels do more than speed erection and reduce costs. They also *insulate efficiently* for but little more than the cost of ordinary uninsulated construction!

### Cemesto Panels Are Amazingly Versatile

Cemesto Panels resist fire, weather and wear—*they're a "life of the building" material!* Can be worked with ordinary tools on the job, or pre-cut at the mill for faster application. Quickly, easily attached to steel framing with metal clips, or to wood framing or wood members with nails.

Cemesto Panels make possible important economies in the design, construction and maintenance of every type building . . . from modest homes to giant industrial plants. Almost 20 years of varied use in all climates, all over the world, prove their stability, performance and permanence. Discover how they can help *you* build better, faster . . . *and at lower cost.* Mail coupon below for full information! *Reg. U. S. Pat. Off.




***These details of interior walls erected with Cemesto Panels indicate the cost-cutting, space-saving simplicity which this modern marvel of building materials makes possible in all types of construction.***

**THE CELOTEX CORPORATION**
**Chicago 3, Illinois**

**CEMESTO**
REG. U. S. PAT. OFF.

**INSULATING STRUCTURAL PANELS**

**MAIL COUPON TODAY!**

**The Celotex Corporation, Dept. PA-90**
**Chicago 3, Illinois**

Please send me FREE your 40-Page Manual, giving full technical data on Cemesto Panels, plus latest design and application recommendations. I am particularly interested in ☐ Partitions ☐ Curtain Walls ☐ Roof Decks.

Name _____

Address _____

City _____ Zone _____ State _____

# "I wasn't asleep," said the Dormouse

EVERY boy and girl knows the drowsy Dormouse of Alice in Wonderland. He was elbowed and pinched by the Mad Hatter and the March Hare as he mumbled in his sleep at the tea party.

But our young people aren't so well versed in everyday economics. They have a sadly distorted picture of the profits of business. They don't realize why profits are necessary, how small they are, or how they are divided.

For instance, in a recent survey of high school seniors, it was discovered that they believe over 50% of the sales dollar is profit and they think stockholders receive 24% of it. Actually business profit averages less than 8%, with less than 3% distributed as dividends. Business uses most of its profit, moderate as it is, for new plant and equipment, to improve products and to make more jobs.

Misconceptions among our youth bode ill for America's future. They open the door for too ready acceptance of dangerous isms and false foreign philosophies. Such misunderstanding of economics can be corrected only with facts supplied by business itself. You as a leader in your community must share this responsibility.

The American business man must not allow himself to be cast in the role of the Dormouse, pinched and pilloried by the March Hares of communism and the Mad Hatters of the "everything for nothing" state.

THE YOUNGSTOWN SHEET & TUBE CO. 1900 YOUNGSTOWN 1950 50 YEARS OF SERVICE

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio

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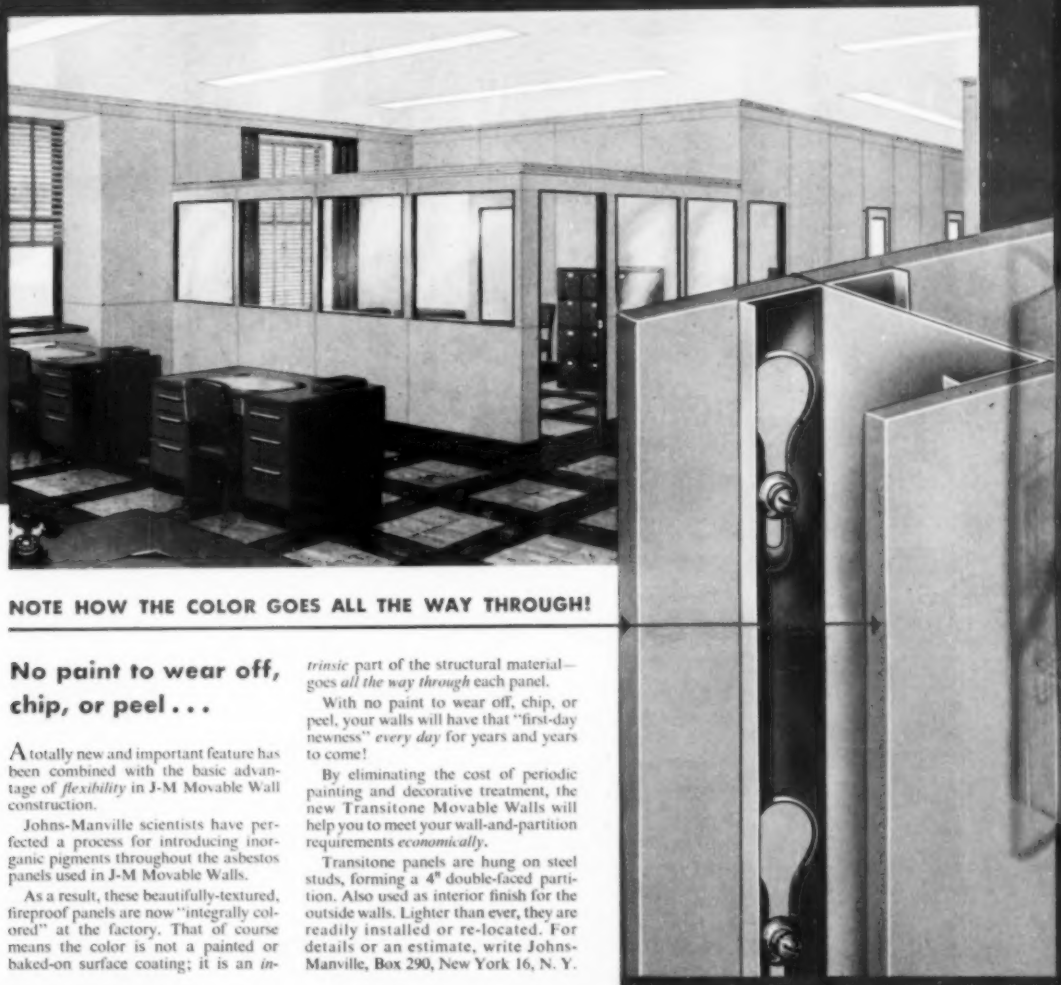
MANUFACTURERS OF CARBON, ALLOY AND YOLOY STEELS

ELECTROLYTIC TIN PLATE - COKE TIN PLATE - WIRE - COLD FINISHED CARBON AND ALLOY BARS - PIPE AND TUBULAR PRODUCTS - CONDUIT - RODS - SHEETS - PLATES - BARS - RAILROAD TRACK SPIKES.

# NOW! Asbestos Movable Walls

## WITH THE PANELS "integrally colored"



**NOTE HOW THE COLOR GOES ALL THE WAY THROUGH!**

### No paint to wear off, chip, or peel . . .

A totally new and important feature has been combined with the basic advantage of *flexibility* in J-M Movable Wall construction.

Johns-Manville scientists have perfected a process for introducing inorganic pigments throughout the asbestos panels used in J-M Movable Walls.

As a result, these beautifully-textured, fireproof panels are now "integrally colored" at the factory. That of course means the color is not a painted or baked-on surface coating; it is an *intrinsic* part of the structural material—goes *all the way through* each panel.

With no paint to wear off, chip, or peel, your walls will have that "first-day newness" *every day* for years and years to come!

By eliminating the cost of periodic painting and decorative treatment, the new Transitone Movable Walls will help you to meet your wall-and-partition requirements *economically*.

Transitone panels are hung on steel studs, forming a 4" double-faced partition. Also used as interior finish for the outside walls. Lighter than ever, they are readily installed or re-located. For details or an estimate, write Johns-Manville, Box 290, New York 16, N. Y.

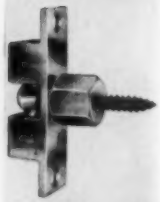
Cutaway of J-M Movable Wall construction. The 7/16"-thick asbestos panels, on patented steel studding, are available in a light tan or light green. Note color is not a surface coating; it actually goes *all the way through* each panel.

**Johns-Manville**

JOHNS-MANVILLE JM PRODUCTS

# Transitone

**MOVABLE WALLS** *with asbestos panels colored all the way through*



# STOP *Abusive Zone* DANGERS

## with G-J Door Controlling Devices

In many cases when a door is carelessly thrown open, it enters the abusive zone.

The abusive zone is the danger area, normally between 90° and 110°, where doors and hardware receive their wear and tear. Most persons are orderly when passing through doors, but those who throw the door into the abusive zone are the cause of door problems.

For more than a quarter century G-J Door Control Devices have incorporated features specifically designed to reduce or eliminate the abusive zone damage to doors and their hardware.

G-J Products include controlling devices for all types of doors in all types of buildings and assure years of unexcelled door operation and protection. For detailed description and applications refer to the G-J catalog.

**GLYNN-JOHNSON CORPORATION**

**4422 N. Ravenswood Avenue**

**Chicago 40, Illinois**

# Write for Your Copy!

*Just off Press!*

## HOLOPHANE GUIDE to EDUCATIONAL LIGHTING

***Light Control Systems and Specifications for:***

- Study Halls
- Kindergartens
- Administrative Offices
- Classrooms
- Work Shops
- Chapels
- Swimming Pools
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- Corridors
- Gymnasiums
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- Blackboards
- Stair Areas
- Dining Rooms
- Outdoor Areas
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- Laundries
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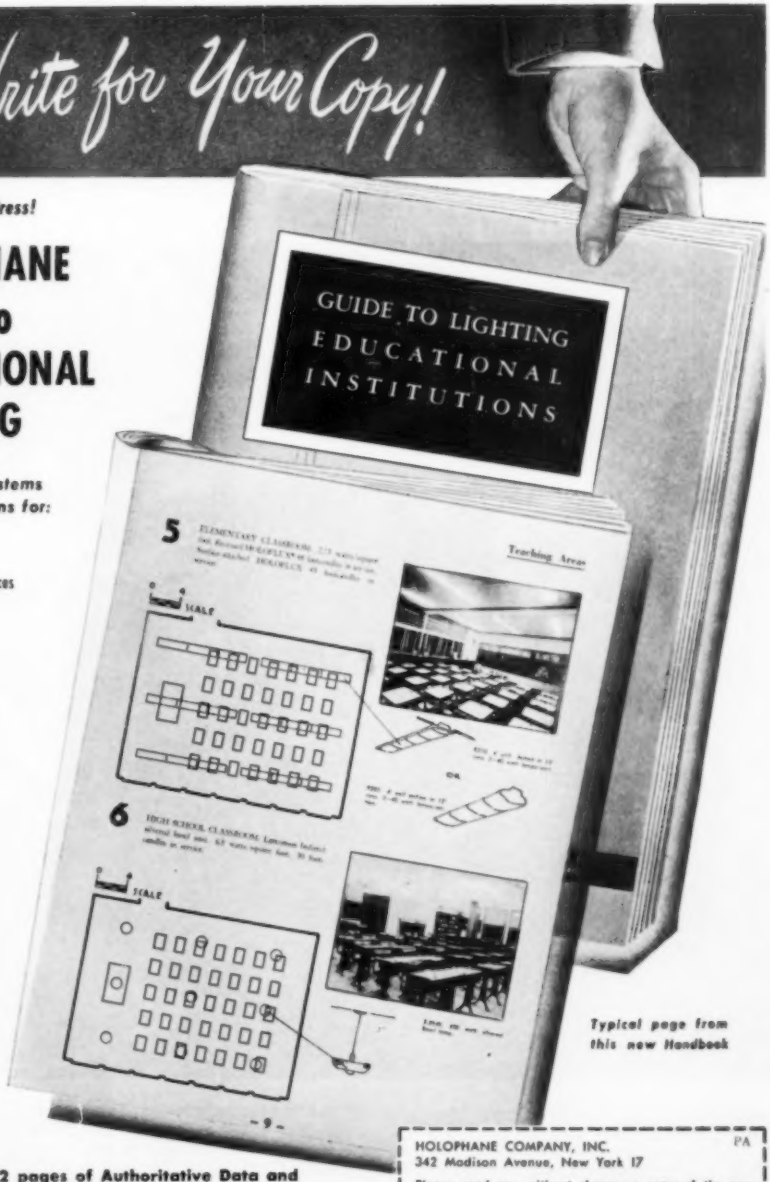
- Libraries
- Music Rooms
- Library Stacks
- Art Rooms
- Theaters
- Drafting Rooms

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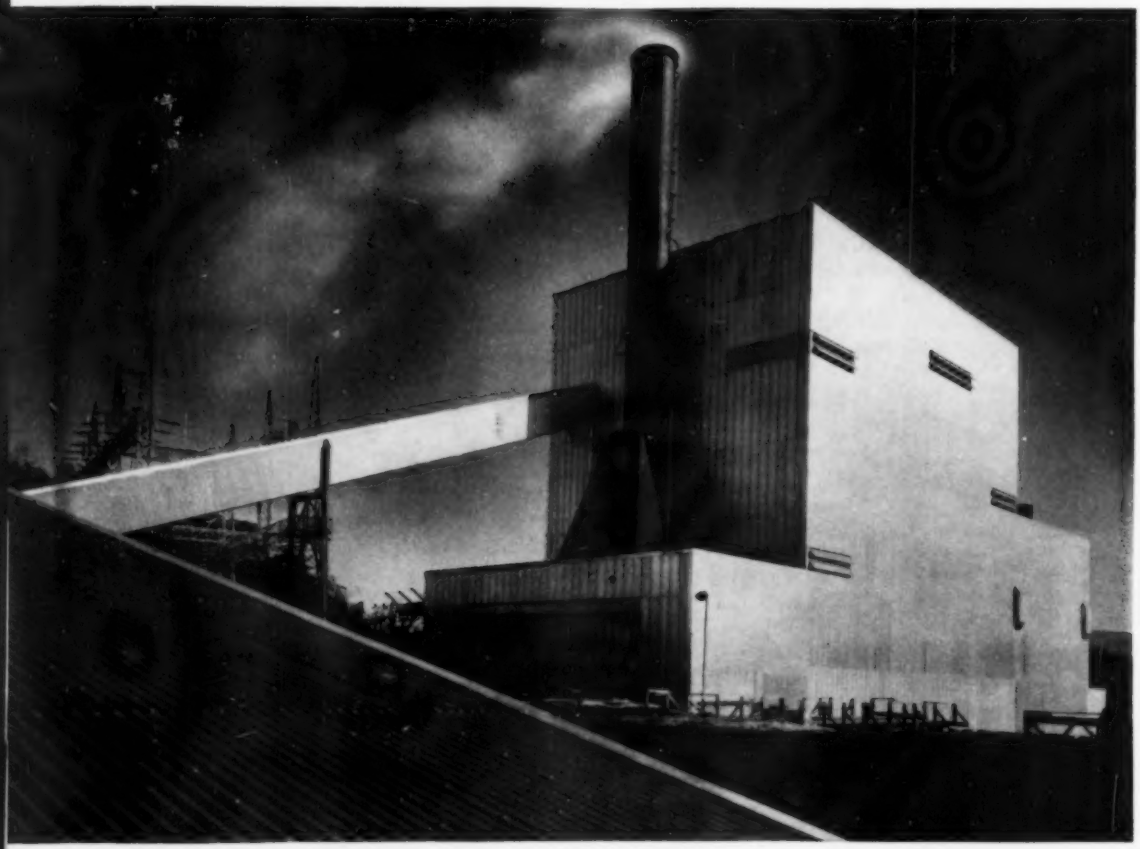
# ALUMINUM LOOKS GOOD



Riverton Station, Northern Virginia Power Company, Front Royal, Virginia. Sanderson and Porter, Engineers and Constructors; Chapman, Evans and Delehanty, Consulting Architects. Aluminum-faced wall panel fabricated and erected by H. H. Robertson Co

Wall panels, surfaced with Alcoa Aluminum, have fluted steel backs and 1.5 inches of glass fiber insulation. Conveyors covered with Alcoa Industrial Building Sheet.

Big, metal wall panels went up fast, required no painting or caulking. Good appearance makes for better public relations in any community.

# TO TREASURERS, TOO

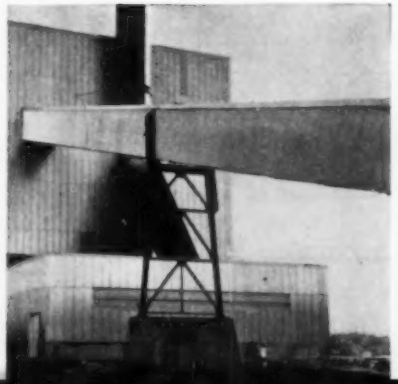
Behind the gleaming surface of this aluminum-clad power plant are shining facts to gladden the heart of a cost-conscious treasurer.

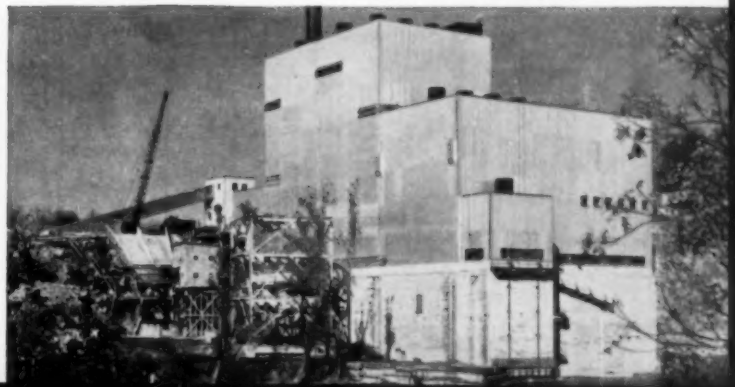
The owners estimate that building with big, easy-to-erect, aluminum-faced panels saved more than $50,000 over masonry wall construction. Big, 18-foot-high panels were erected quickly by five-man crews. Speed in construction means that plants start producing income sooner. This pleases not only treasurers, but presidents and directors, too. The many aluminum-faced plants now in operation have proved that the savings go on year after year. Aluminum surfaces need no painting, pointing or upkeep. Wall panels with glass fiber, or similar insulation, equal foot-thick masonry in insulating value. And they remain a thing of beauty for years to come, for aluminum can't rust-streak, rot or warp.

Aluminum building panels and Alcoa Industrial Building Sheet are available in standard and special types and sizes with complete engineering data. For information on these and other building applications of aluminum, call your nearby Alcoa Sales Office or write ALUMINUM COMPANY OF AMERICA, 1892J Gulf Bldg., Pittsburgh 19, Penna.

ALCOA

FIRST IN ALUMINUM





This Servel *All-Year* Air Conditioned house was built in the Crestwood subdivision, Birmingham, Alabama by B. G. Brasher. Earl Murray is the architect.

# NOW YOUR PLANS CAN

## AT LITTLE OR NO EXTRA COST!

### OFFSET ITS COST WITH THESE ECONOMIES IN DESIGN

As you plan a building around Servel *All-Year* Air Conditioning, you'll realize that many of the conventional features of a house no longer have any function. You can use fixed glass, dispense with fireplaces, fans, screens, etc. This way you can often save enough to make up the extra cost of installing the Servel system. Your client will be delighted, for he's exchanging comforts that he enjoys only occasionally for *all-year* comfort. What's more, air-conditioning adds considerably to the resale value of a house —and helps to keep it high

NO SCREENS

NO ATTIC FAN

NO FIREPLACE

LOWER-COST WINDOW CONSTRUCTION

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**Of all the elements that can enter into modern home design, no single one makes such a difference as Servel *All-Year* Air Conditioning**

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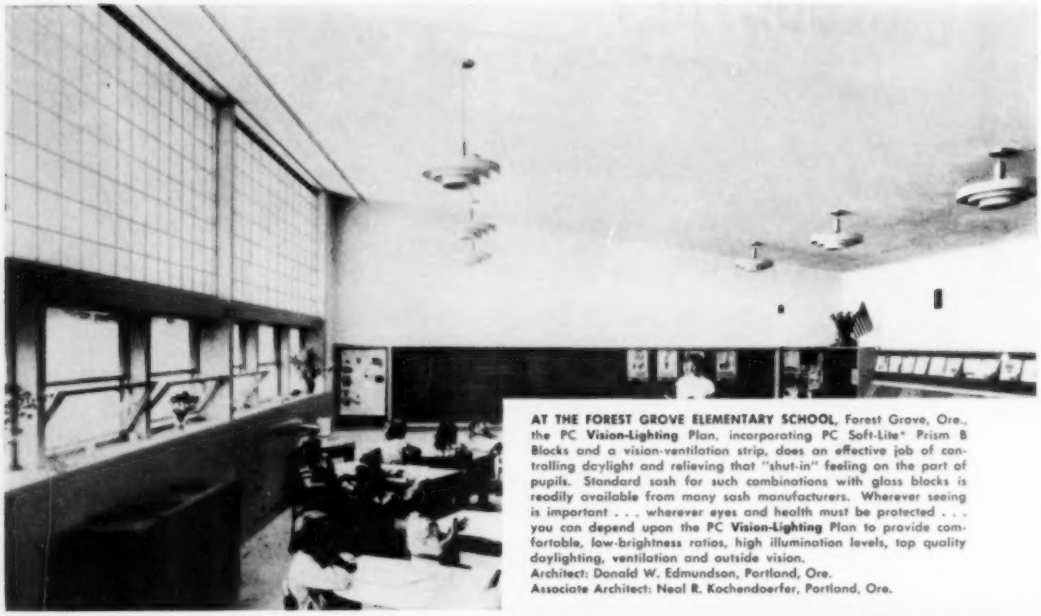
**Servel** *All-Year* AIR CONDITIONER

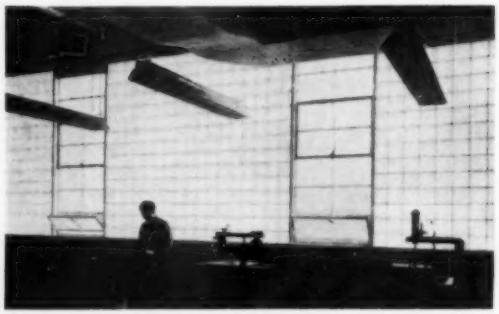
FOR HOMES • STORES • OFFICES

# Make the most



**AT THE FOREST GROVE ELEMENTARY SCHOOL,** Forest Grove, Ore., the PC **Vision-Lighting** Plan, incorporating PC Soft-Lite* Prism B Blocks and a vision-ventilation strip, does an effective job of controlling daylight and relieving that "shut-in" feeling on the part of pupils. Standard sash for such combinations with glass blocks is readily available from many sash manufacturers. Wherever seeing is important . . . wherever eyes and health must be protected . . . you can depend upon the PC **Vision-Lighting** Plan to provide comfortable, low-brightness ratios, high illumination levels, top quality daylighting, ventilation and outside vision.
**Architect:** Donald W. Edmundson, Portland, Ore.
**Associate Architect:** Neal R. Kochendoerfer, Portland, Ore.

**IN THIS NEW BUILDING** for the Cadillac Textile Mills, Inc., Cumberland, R. I., the PC **Vision-Lighting** Plan includes ventilating units and inserts of PC Vue Glass Blocks. The clear Vue blocks provide good general vision without sacrificing insulation value. Architect: Ray F. Arnold, Pawtucket, R. I.



**LARGE AREAS** of PC Functional Glass Blocks—with the exclusive Soft-Lite* Edge Treatment—alternate with vision-ventilating sash to make the Gospel Publishing Company, Springfield, Mo., a well-lighted, well-ventilated plant. Architects & Engineers: Johnson & Robinett, Springfield, Mo.

PITTSBURGH PC CORNING

## GLASS BLOCKS

*DISTRIBUTED BY PITTSBURGH PLATE GLASS COMPANY;*

# of Daylight

## WITH THE PC *Vision-Lighting* PLAN

**The PC Vision-Lighting Plan is a construction for daylight openings consisting of orientation-keyed areas of PC Functional Glass Blocks (selected for sun or non-sun exposure) used with vision-ventilation areas as required.**

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Let us send you our free booklet showing many applications of the PC *Vision-Lighting* Plan. Just fill in and return the coupon below.

**Be sure that you specify the functional block especially designed for precision work . . .**

New, exclusive features in PC **Functional** Glass Blocks make the PC **Vision-Lighting** Plan even more effective for daylighting areas where critical seeing tasks are performed. These features include light-directing prisms on the interior faces of certain patterns, light-spreading corrugations on outside faces, a fibrous glass insert to diffuse still further the light transmitted by the block itself, and the PC Soft-Lite* Edge Treatment, which creates a better, more comfortable "eye-ease" panel appearance. Besides, all PC Glass Blocks embody the additional advantages of excellent insulating properties. They require no repairs or replacements, no periodic painting or puttying. They reduce heating and air-conditioning costs. And they are easily cleaned.

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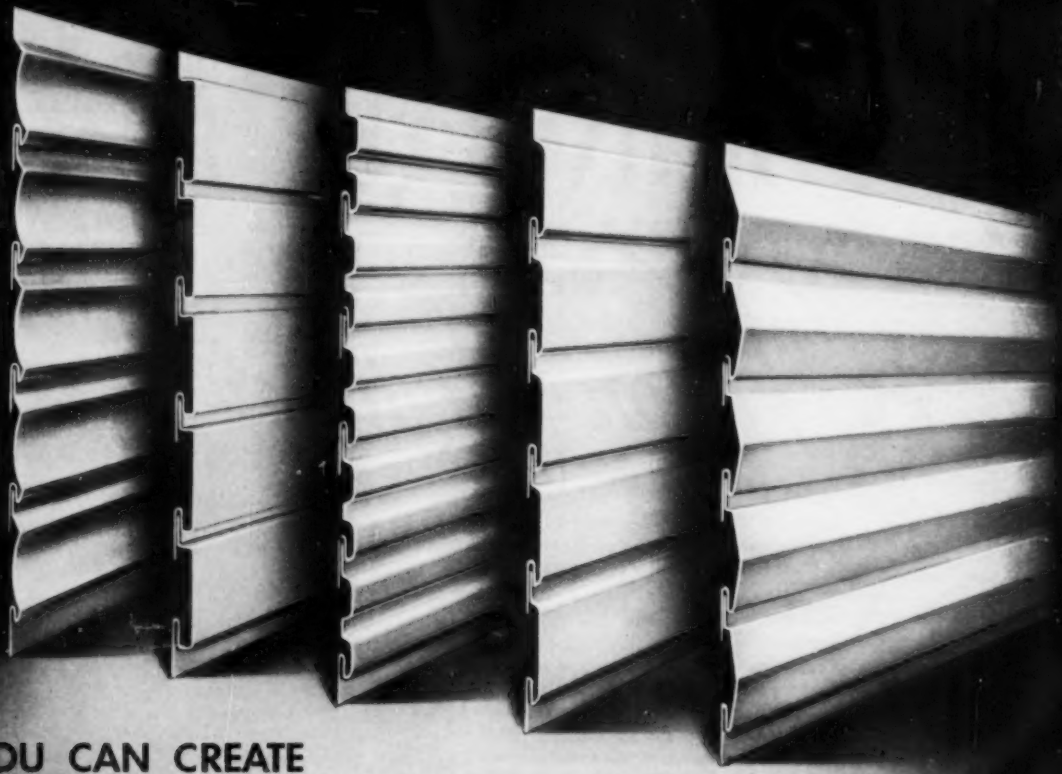

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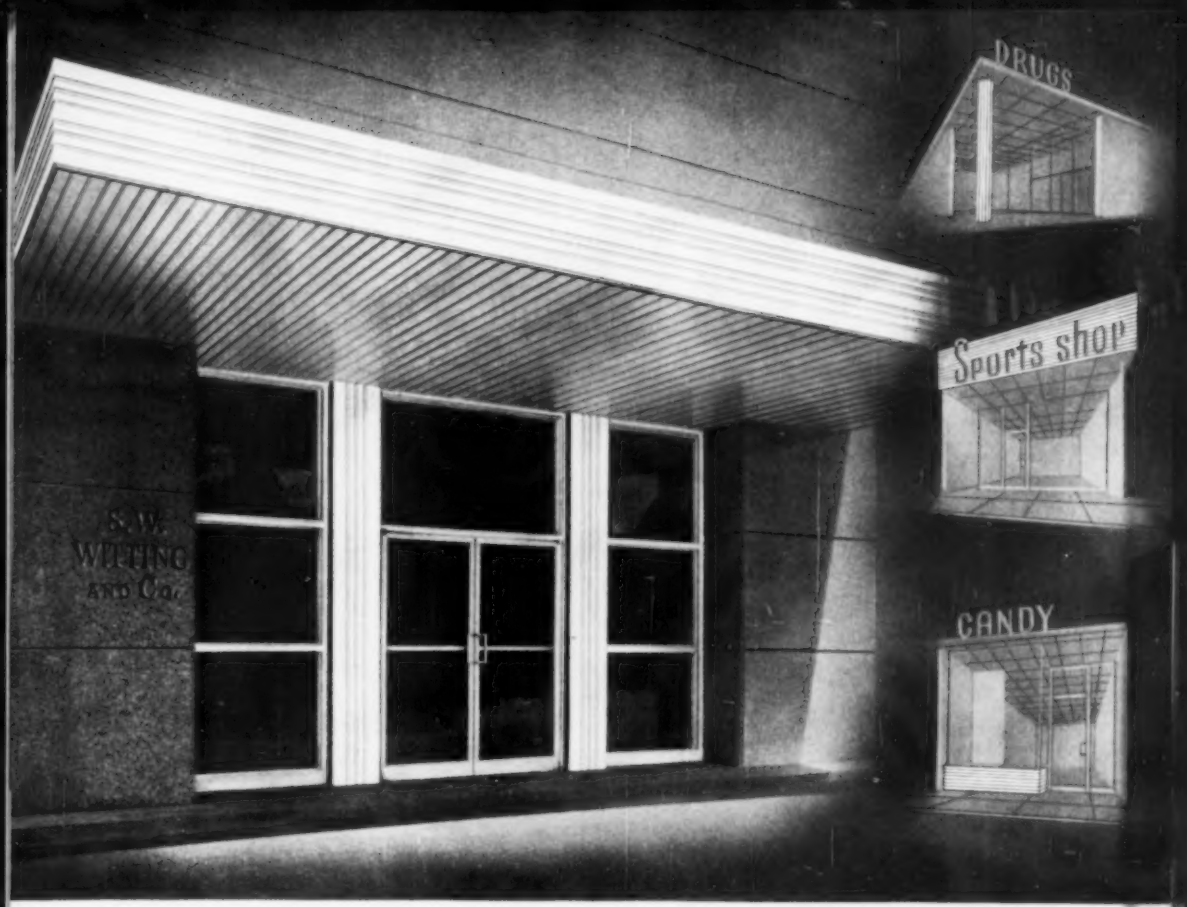


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*Each Squantum School classroom is a separate wing, providing bilateral lighting and a cross draft from both sides. Architects are Colletti Bros., Boston, Mass.*

# *New Massachusetts School*

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## *Modern, Colorful Squantum, Mass. Public School designed to make learning an adventure*

*The rich green baked enamel finish of these full-length recessed Berger Steel Lockers helped set the bright, cheerful corridor color scheme. Linoleum-covered floor is Nile green, lockers are dark green, walls are light green, with ceiling a yellow acoustical tile.*

"Pleasant surroundings can make schooling an adventure, rather than a chore and a bore," says the architect of the new additions to this suburban Boston school.

Helping make school days pleasant adventures are the convenient, functional Berger Steel Lockers recessed in corridor walls.

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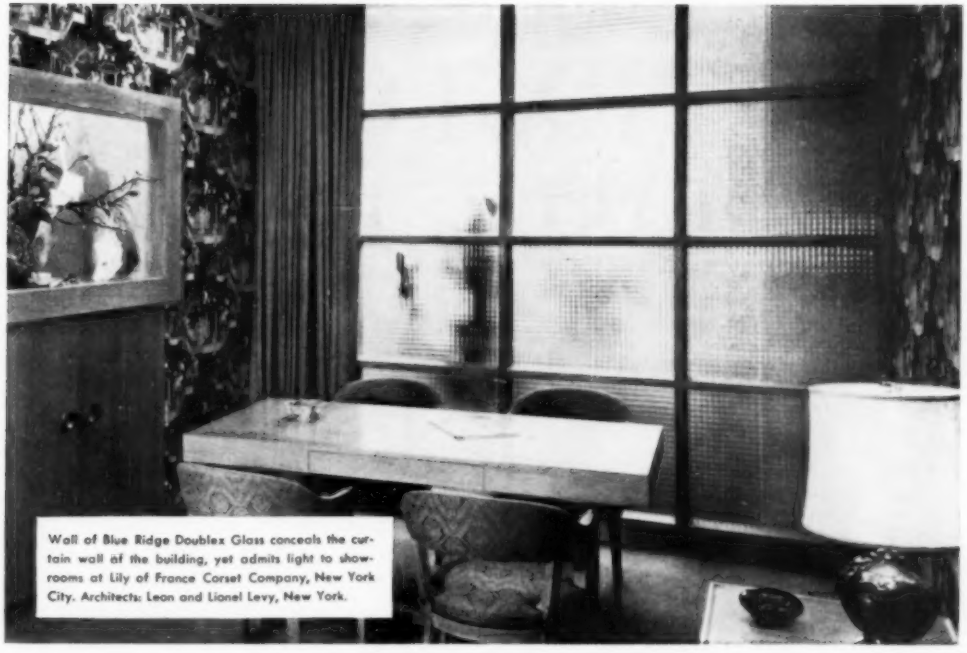

Wall of Blue Ridge Doublex Glass conceals the curtain wall of the building, yet admits light to showrooms at Lily of France Corset Company, New York City. Architects: Leon and Lionel Levy, New York.

# ADD LIGHTING... to the usual functions of walls

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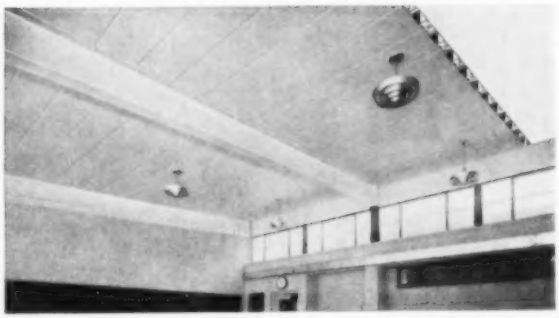
# How to Slash the Cost of Structural Steel in Schools



Bendle School at Flint, Michigan, where the *two* flat surfaces of "AD" Panels form the ceilings and *roof*. *Architect:* Bennett & Straight, Dearborn. *Contractor:* Perry-Root Company, Flint.

Lower illustration shows how side laps interlock to form smooth, flat ceilings, strong, flat roof. Panels standardized in 16" width. Depths 3", 4½", 6" and 7½". Gauges 16 to 13.

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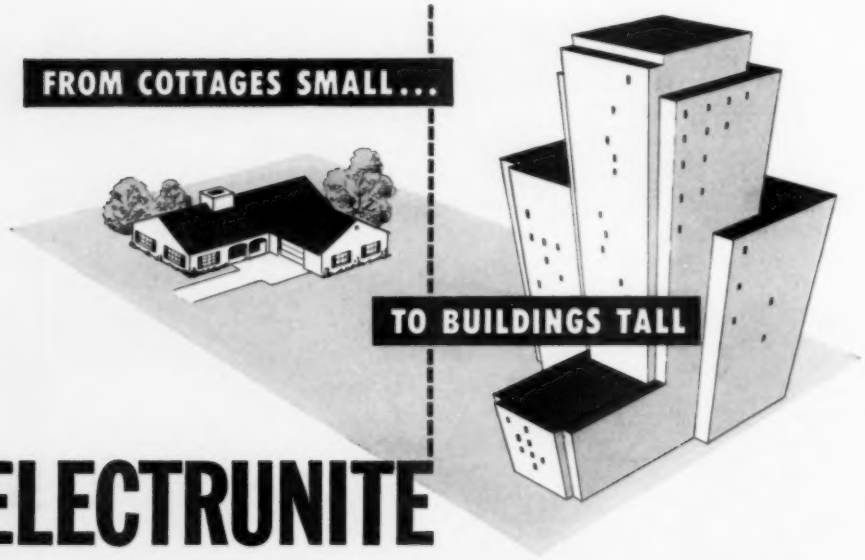


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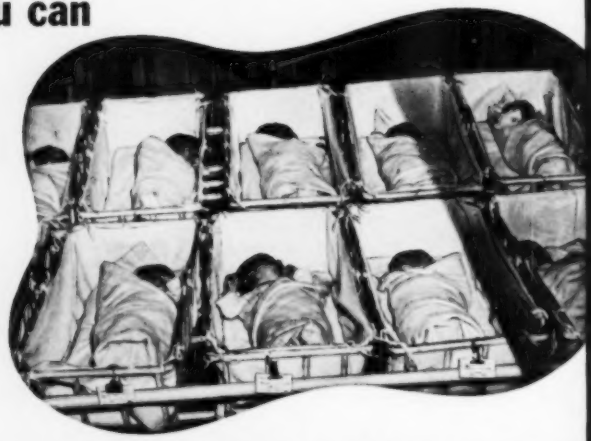
# They're YOUR responsibility, too ... give them every protection you can



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**Architects: Cram and Ferguson**

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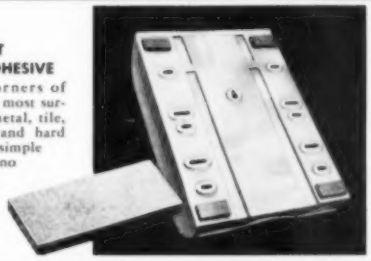

# ...for up-to-date washrooms!

FIRM BELIEVERS IN DOING THINGS the *modern* way, Cram and Ferguson found a partner in Scott when they designed the washrooms for Boston's new John Hancock building.

All Scott fixtures, you'll find, blend handsomely with the newest architectural trends. And Scott consultation service (yours for the asking) wraps up the experience gained in servicing over 300,000 washrooms and puts it beside your planning board.

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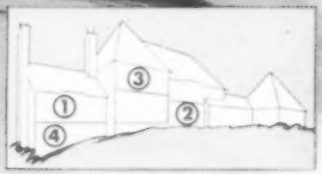
# A Mistake Was Made!

## One thermostat wasn't enough!




**This Type of Home Needs 4 Thermostats**

1. In the Living Room Area
2. In the Dining-Service Area
3. In the Sleeping Rooms Area
4. In the Recreation Area

THE ORIGINAL builders of this lovely home spared no expense on the furnishings and equipment. But it seemed impossible to heat comfortably. When the living and dining rooms were just right, the recreation room was too cold. The bedrooms never got enough heat. When the temperature setting was raised to make the rest of the house comfortable, the living room was too hot. Honeywell control engineers were consulted — found the answer.

To provide real comfort, a home of this type should have four heating zones, each controlled by a thermostat—one in the Living Room area, one in the Dining-Service area, one in the Sleeping Rooms area and one in the Recreation area.

If you are designing a home, don't hesitate to call upon Honeywell's specially trained staff of control engineers. They stand ready to assist you, without obligation, of course. When you specify Honeywell controls, you can be certain that you will get the most faithful controls available for your clients.

**ELECTRONIC CLOCK THERMOSTAT**

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Architect: **THE FIRM OF FREDERICK G. FROST JR.,** New York

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# the architect and his community

**a p/a case study**

**NARAMORE, BAIN, BRADY & JOHANSON, ARCHITECTS AND ENGINEERS**

**SEATTLE, WASHINGTON**

*Number Five in the P/A series of case studies of architectural firms that have had extraordinary influence on the communities in which they are located, this is the first to discuss an office in a really large city. Naturally, no one firm's work actually dominates the boulevards or skyline of a metropolis. But the Naramore, Bain, Brady & Johanson office—actually an amalgam of three firms—has had more effect than most and sets a record that few metropolitan offices can claim. While the bulk of the practice has consisted of particular building types, the firm has constructed, and continues to work on, buildings of practically every non-residential type. And the independent efforts of the members of the firm include private houses as well. As some evidence of the scale of operations, the office has been responsible, during the past five years, for $60,000,000 to $70,000,000 worth of commissions.*

Naramore

Johanson Brady Bain

## SEATTLE AS A PLACE TO PRACTICE

"The city is relatively young," the partners comment. "It is celebrating its Centennial in 1952." Because of this, it is not hopelessly steeped in traditional architecture. "There are Cape Cods, etc., being built," they continue, "but there is a strong acceptance of contemporary design which extends even to speculative building. The architecture of the Puget Sound country has developed over the past decade to the point where it has its own fresh character." Some of the contributing elements lie in the geographical setting and the nature of the population. Seattle has a magnificent setting, "lying between bodies of salt and fresh water, with snow-capped mountains both to the east and to the west." During the war, population rocketed and since, "there has been a great deal of building . . . Architects have increased as well; a number of younger architects from the east who came during the war years to work in war plants remained to practice architecture." In general, though, there are no very large offices; typical offices having from 4 to 10 men.

## BACKGROUND

The firm of Naramore, Bain, Brady & Johanson was established during the war years to cope with the problems of designing large-scale war housing projects. It was a pooling of resources of three firms—Naramore & Brady; William J. Bain; and Smith, Carroll & Johanson. Although the joint activity was originally a temporary expedient, the architects found they enjoyed working together and decided to continue association in the postwar years in a non-residential practice. The old firms of William J. Bain and Smith, Carroll & Johanson still maintain independent offices, engaging principally in residential work.

(Continued on page 70)

Right: detail of main entrance.
Below: rendering of total building, viewed from southeast; locker rooms occur behind long strip windows at left center. *Photos: Dearborn-Massar*

## Field House: Seattle, Washington

**program** One of several public fieldhouses designed to serve a population of 25,000. Minimum initial cost and low maintenance cost indicated a structure made up of substantial materials. Specifically required: a combination auditorium-gymnasium (senior high school size) with stage and complete scenery loft; lockers and showers for 134 boys; same for 77 girls; a craft room; a game room; three social rooms, to be used as community-club meeting rooms; two kitchens adjacent to social rooms; a control desk; two offices; storage for chairs and equipment.

**site** A plot adjoining a playfield in a heavily populated area of Seattle.

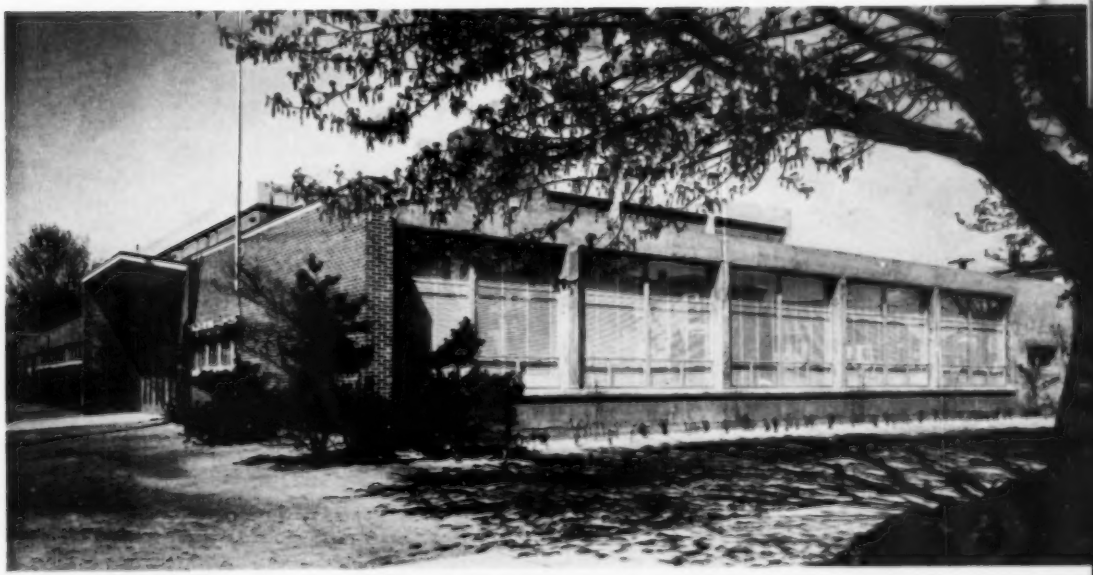
**solution** A building organized on two main floors, with gym-auditorium, locker and shower rooms, craft room, the game room, one social room, and a kitchen on the ground floor; two social rooms and a kitchen on the upper floor, adjoining the upper portion of the gym-auditorium. The sturdy building is of concrete, with brick facing. Cost came to $13.60 per square foot.

**materials and methods** CONSTRUCTION: Concrete foundation. *Frame:* concrete. *Walls:* concrete, faced with brick outside; with plaster (in some areas) indoors. *Floors:* concrete, surfaced with asphalt tile (in lobby); wood-block parquet type in social rooms; maple, in gymnasium. *Roof:* concrete, except over gym where mill construction was used; built-up roofing. *Waterproofing:* emulsified asphalt. *Insulation:* acoustical—perforated asbestos-cement tile; wool type in gym; thermal—1″ cork on roof. *Partitions:* tile; plaster; brick; ceramic glazed tile; flush steel toilet partitions. *Fenestration:* steel sash; clear glass and directional glass block. *Doors:* hardwood faced flush doors.
EQUIPMENT: *Heating and air conditioning:* hot-water system; oil-fired boiler; convectors; controls; ventilation system blowers; filters. *Lighting:* incandescent.

**the architect and his community: NARAMORE, BAIN, BRADY & JOHANSON**

Above: entrance lobby, with control desk at right.

Below: eastern end of building, with exposed concrete structure; big windows serve the game room and the ground-floor social room; kitchen at rear.



**FIELD HOUSE: SEATTLE, WASHINGTON**

Below, left: eastern end of one of the upstairs social rooms; right—lobby, outside the gym-auditorium.

Bottom of page: general view of gym-auditorium; chair storage occurs beneath the stage.

# Health Sciences Building, University of Washington; Seattle, Washington

This vast structure (to which a huge new University Hospital will eventually be added) houses the School of Medicine, School of Dentistry, and School of Nursing.

Above: view from northwest; block at left houses the library and stack room (ground and first floors) and the auditorium (above).

Right: general view from northeast, showing the three projecting wings of the Schools of Medicine and Nursing.

*Photos: Dearborn-Masser*

*Note:* In the design of this building, the firm of Naramore, Bain, Brady & Johanson collaborated with McClelland & Jones, Associated Architects, and John Paul Jones, Supervising Architect.

Above: general view from the south, showing the rear of the building, with access at grade from ground-floor level; large wing at right houses the School of Dentistry; window wall in center borders the student lounge.

Left: main entrance lobby; doors at left lead to administrative offices of the School of Medicine.

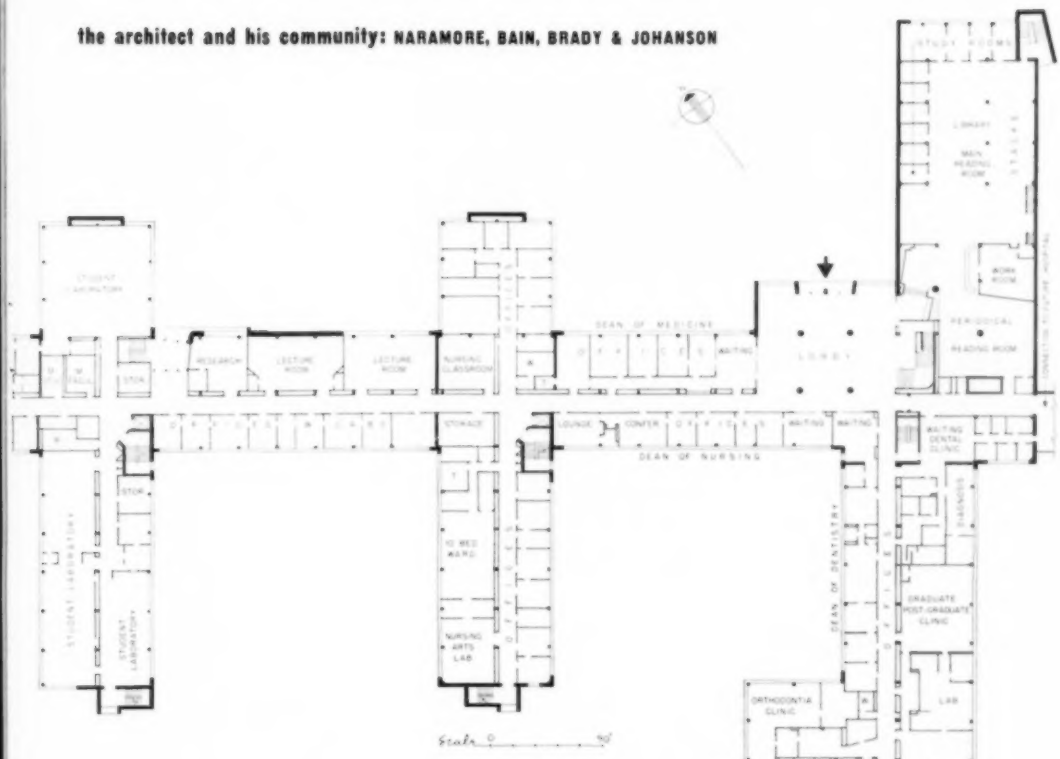
First Floor

## HEALTH SCIENCES BUILDING: SEATTLE, WASHINGTON

**program** To design one structure to house teaching facilities for Schools of Medicine, Dentistry, and Nursing, with basic Science Departments adequate for the entire University instruction requirements; adjoining Hospital, now in planning stage. Each school planned for an annual class of 75. Clinical areas in the School of Dentistry complete in the present building—main dental room, with 110 chairs, as well as special rooms for orthodontia, prosthetics, oral surgery, freshman and sophomore practice rooms, and facilities for graduate work.

**site** Open slope (former golf course) overlooking a bay of Lake Washington to the south (rear) across arterial street from main campus.

**solution** Organization within a long, four-story and ground floor scheme (on rear, or south front, the land slope allows grade access at ground-floor level), with long axis running east-west, and laboratories, offices, and various specialized rooms in projecting wings north and south; a main entrance lobby on the north front serves administrative offices of all schools, also leads immediately to library and auditorium. The School of Dentistry occupies the atypical north-south wing at the east end of the building; Nursing School and School of Medicine in the other three wings. Shown in this presentation are the first (main entrance floor) and the third floor. At ground-floor level, lecture rooms, and freshman and sophomore dental labs occur in the School of Dentistry wing; student nurses' locker room and dining room, and a lecture room




occur in the next wing to the west; a student lounge borders the corridor, with a view over the bay, and various specialized labs and storage rooms occupy the remaining two wings. In general layout, the second floor (biochemistry; pharmacology; corrective physiology) resembles the third-floor plan. The top floor, occupying the long-axis portion of the building, is devoted to animal quarters.

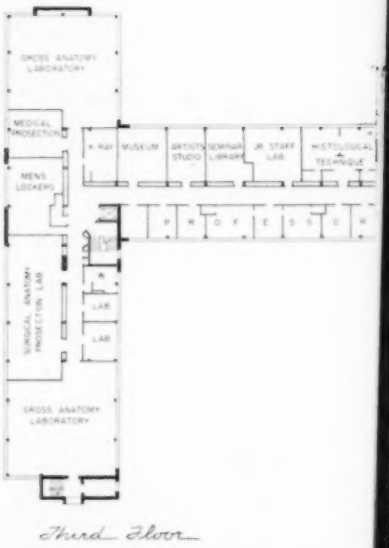
Windows on the south, east, and west have glass block panels above vision strips; on the north side, clear glass is used; strip windows were used to allow for flexibility in locating partitions.

**materials and methods**

CONSTRUCTION: Concrete foundations; spread footings. *Frame:* concrete. *Walls:* brick and ceramic veneer facing on the exterior; interior walls, either exposed cement or plastered. *Floors:* concrete, finished with asphalt tile, rubber tile, or ceramic tile. *Roof:* concrete; composition roofing. *Waterproofing:* emulsified asphalt, behind brick on concrete. *Insulation:* acoustical—plaster; tile; board type in auditorium, backed with wool insulation; thermal—cork, on roof. *Partitions:* concrete block; ceramic glazed block. *Fenestration:* aluminum sash; clear glass; directional glass block,

EQUIPMENT: *Heating and air conditioning:* from central steam plant; convectors; air supply to corridors; exhaust through laboratory areas; auditorium and main dental clinic have cooling. *Electrical:* indirect and recessed incandescent.

A typical laboratory in one of the north-projecting wings of the medical school; blank wall between strip windows at the north end is a breather wall, housing ducts, pipes, etc., to service the lab. Otherwise, pipe runs are exposed to make utilities accessible for changes and extensions of equipment.

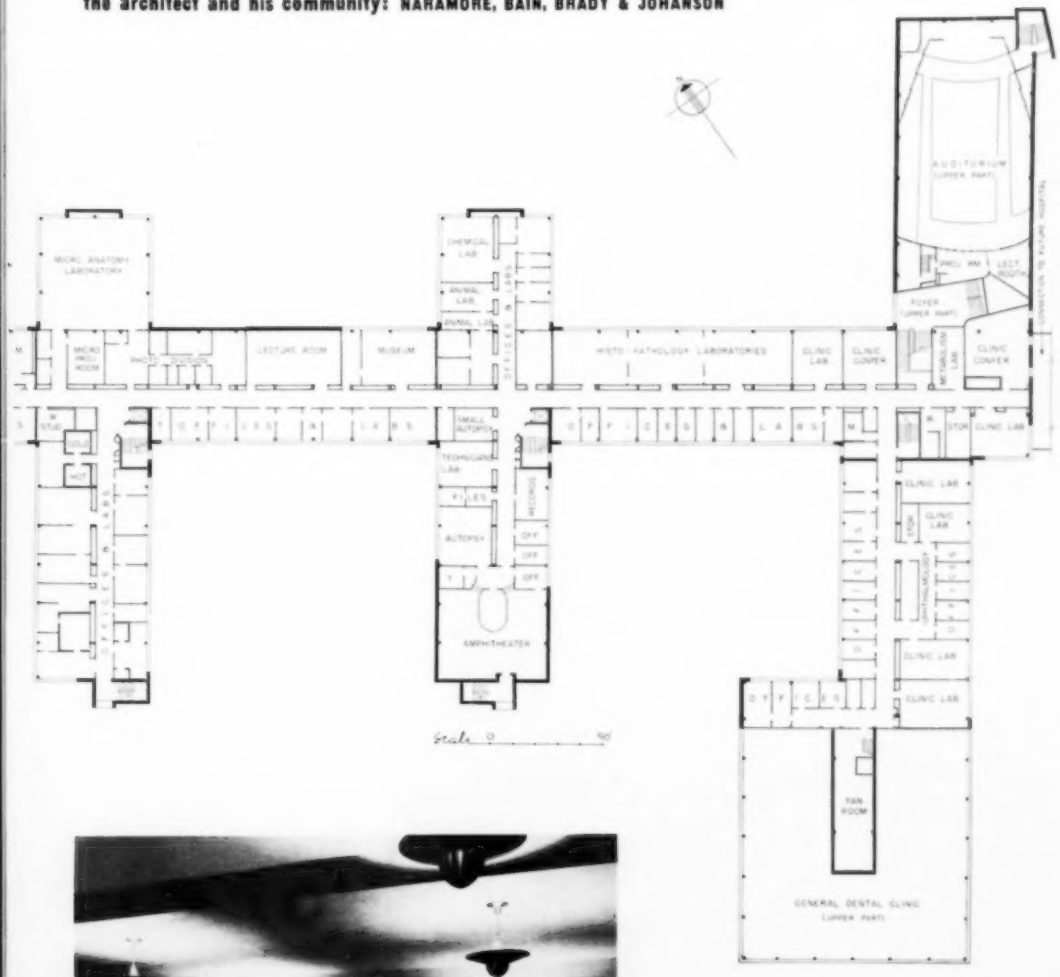


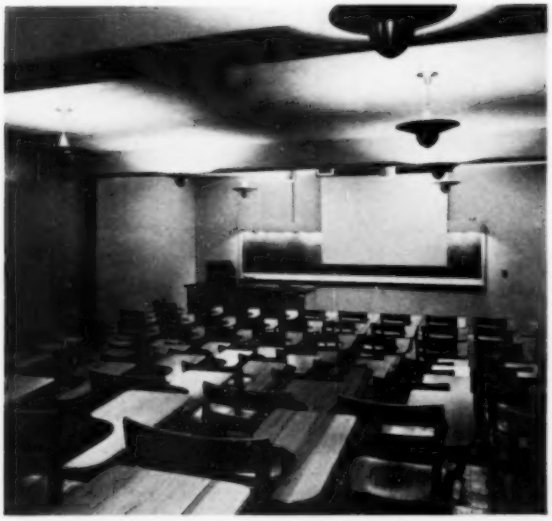

Third Floor

**HEALTH SCIENCES BUILDING: SEATTLE, WASHINGTON**

Above: main reading room of library, reached from first-floor lobby; stacks at right; special study rooms at left and along far (north) wall.

Left pathology amphitheater, at south end of the first south wing west of the School of Dentistry, on the third floor (see plan above).



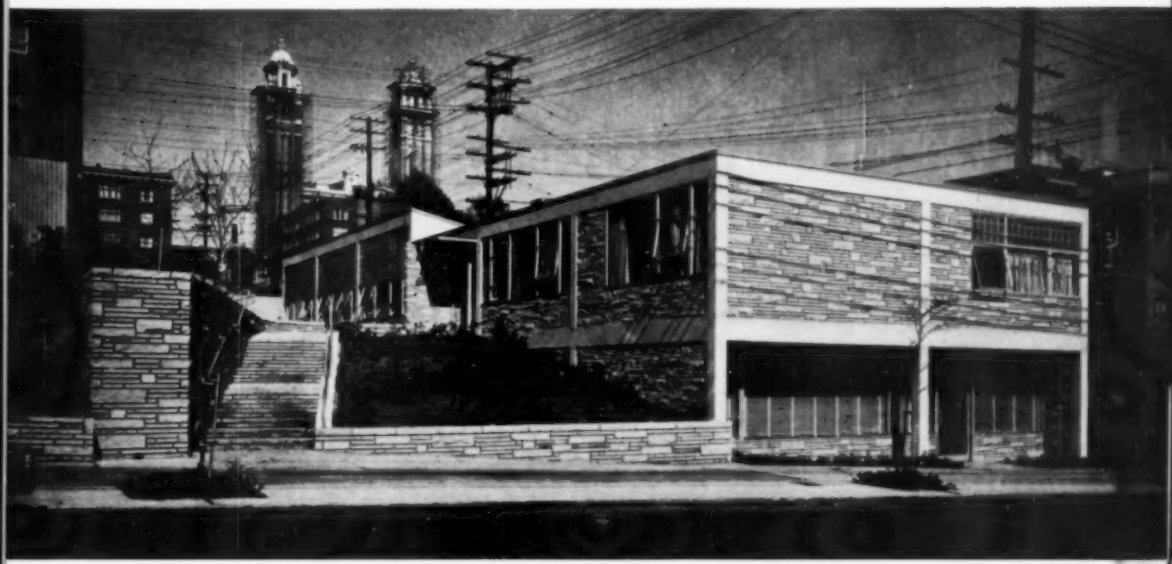



Typical windowless lecture hall for showing slides or movies. A lecture hall similar to this occurs in the center of the north wall on each floor.

Left: night view of south wing of School of Dentistry. The main dental clinic (top floor) has three walls of glass block (above vision strips) that flood the room with even light.

Above: the main dental clinic—110 chairs—is year-round air conditioned. Color scheme: soft gray-blue, with gray upholstery; gray fittings and stainless steel sinks and taps; floor is gray and coral rubber tile.

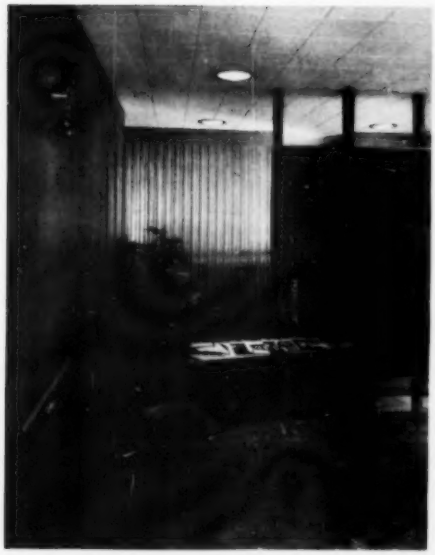
Left: children's dental clinic, on the first floor.

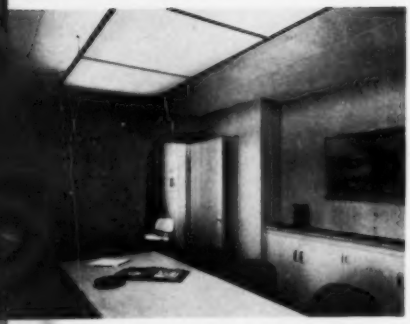


## Architects' Office Building: Seattle, Washington

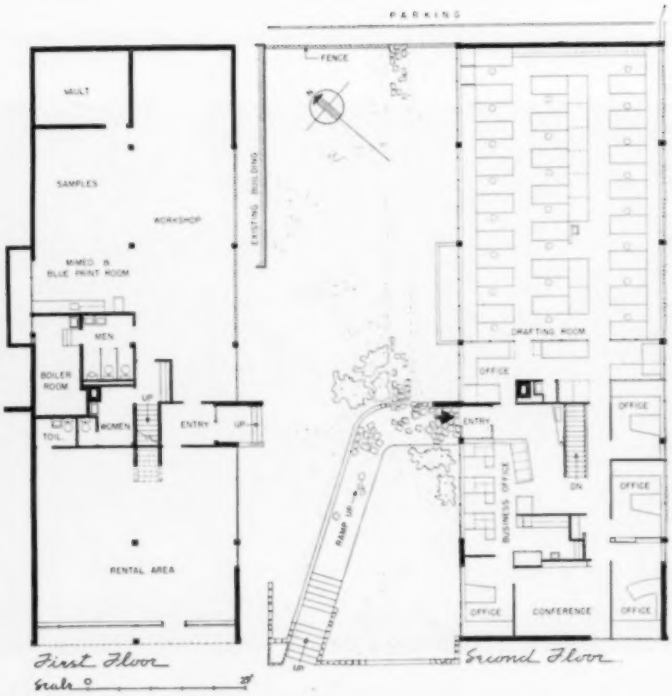
The firm built its own offices on a sloping site just three blocks from Seattle's business center; on the street front (above) the lower floor is a rental unit; at rear of this lower floor are the architects' sample room and workshop (entered from side street or from stairs down from architects' offices).

Below, left: glass wall of reception room borders stair to lower floor; Right: detail of main entrance door.





The conference room, paneled in Phillipine mahogany plywood, occurs at the southwest end of the main floor, accessible either from the reception room area or directly from one of the principals' offices. *Photos: Dearborn-Massar*

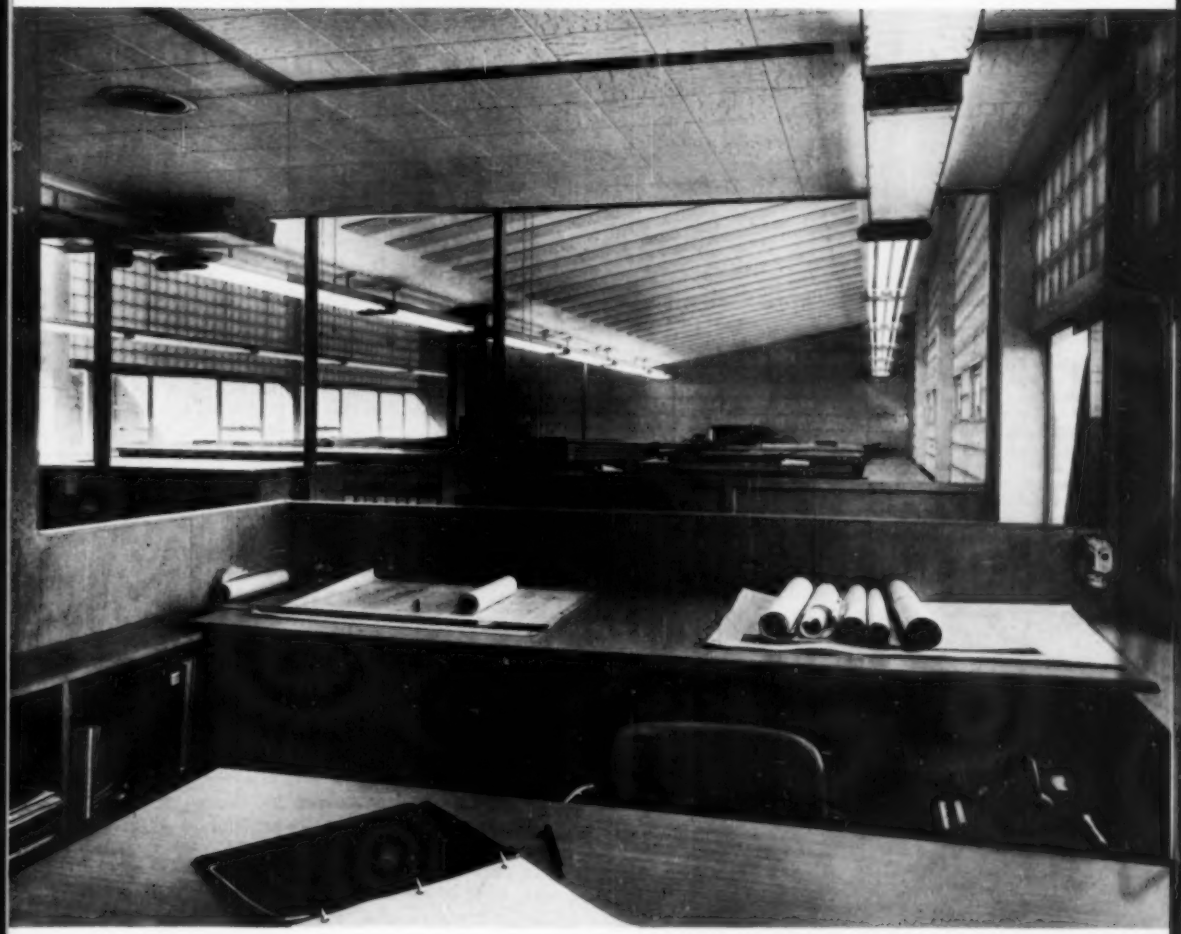



**program** Head offices for the firm, on not too costly land, but within easy distance of main business center and with room for car parking. Space requirements: 3000 square feet normal; 6000 square feet maximum; drafting room for 20 boards normal; business offices; 3 desks; reception room; conference room to seat 10; 4 private offices for the partners; storage for supplies and coats; toilets; vault; sample room; small kitchen; balance of area for drafting or rental.

**site** A 60′ x 120′ sloping, corner site, only three blocks from mid-downtown, at a land cost of $100 per foot; space at rear for car parking, reached from an alley off the side street.

**solution** Taking advantage of the site slope, a lower floor with street frontage was included as a rental space; also on this floor (to the rear) is the firm's workshop, sample room, vault, and blueprint room. The architects' main office space is on the upper level, reached by steps and a flagged ramp, through a landscaped area, on the north-west side of the plot. Lighting in the drafting room—"almost constant from the outside wall to the center of the room," the architects tell us—is achieved by directional glass block (with clear glass vision strips and insets) that throws light into the middle of the room. Side walls of the room extend up to 11 feet, while the ceiling at the center is held to 8 feet.

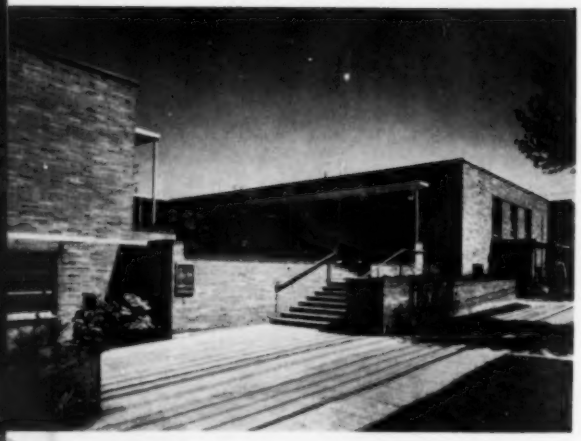
**materials and methods** CONSTRUCTION: Concrete foundations. *Frame:* reinforced concrete. *Walls:* sandstone and concrete, with interior surfaces of plaster and (in private office, conference room and waiting room) Phillipine mahogany. *Floors:* concrete; hardener; asphalt tile; carpet. *Roof:* steel and wood, surfaced with composition. *Partitions:* wood, plaster, and concrete block. *Fenestration:* steel sash; plate glass and directional glass block. EQUIPMENT: *Heating:* hot water convectors; oil-burning boiler; pumps; controls. *Lighting:* fluorescent in drafting rooms and offices; recessed incandescent in waiting spaces.



**ARCHITECTS' OFFICE BUILDING: SEATTLE, WASHINGTON**

Above: the drafting room, with butterfly roof sloping up from 8-foot height at the center to 11 feet at outside walls; directional glass block throws daylight into the interior of the room.

Right: secretarial space, along northwest corridor leading back to corner office and conference room; asphalt tile covers the floor in this area.



**the architect and his community:**

Above: The Blake Clinic—a building to house seven doctors' offices, arranged so that each office is independent, with its own patients' entrance and doctor's entrance. Standard masonry construction, with Roman brick exterior face.

Above, right: Nurses' Home for the Swedish Hospital, Seattle. Facilities for 120 student nurses—2 to a room; 24 to a floor. Recreational facilities are also included. Reinforced concrete construction.

*Photos: Dearborn-Massar*

(Continued from page 57)

Floyd A. Naramore, born in Illinois, received his schooling at the University of Wisconsin, later receiving his architectural degree at M.I.T. After early work in various offices, he became architect for the Portland, Oregon, public schools. Success here led to appointment as architect for Seattle public schools, an office he held for 13 years. Following this was a partnership (Naramore & Menke); a period of seven years in private practice; the setting up of the Naramore & Brady partnership, which was active until the establishment in 1943 of the present office. While the other three partners hold architectural licenses to practice in Washington, Naramore also has this privilege in Oregon and Alaska.

Born in Canada, William J. Bain attended the University of Pennsylvania and worked in both Seattle and Los Angeles offices before establishing his own office in Seattle in 1927. He now holds what must be an almost unique place in the profession; for he is currently a principal in three active firms—his own independent practice; a partnership in the firm under discussion; and also partner in the firm of Bain, Overturf, Turner & Associates, established in 1946.

Clifton J. Brady attended Iowa State College and thereafter had a wide variety of architectural associations—as draftsman and architectural inspector for a Sioux City firm; superintendent of construction for a general contractor; architectural engineer and specification writer for Floyd A. Naramore; then Naramore's associate in practice (until 1933), and later (1938) as his partner. From 1933 to 1938, he served as Examiner in Charge of Architectural Progress for the State of Washington (PWA).

A Coloradan by birth, Perry B. Johanson followed his architectural training at the University of Washington with 15 months of travel in Europe, a jaunt made possible by a scholarship award from the University. In 1936, the firm of Smith, Carroll & Johanson was founded, and still conducts a busy residential practice; during the war, Johanson joined this firm.

OFFICE PRACTICE

The firm consists of the 4 principals, 3 secretaries, and 20 architectural men. Of the latter, those with special duties are Messrs. Rising and Forssen (in charge of drafting and supervision); Hennessey, in charge of design; Carroll, in charge of supervision; and, Cottier, who is in charge of a separate office of 30 men currently doing Alaska work.

Below: typical classroom, with directional glass block above vision strip, in the Roosevelt Elementary School, Olympia, Washington. On the design of this job, Wohleb & Wohleb were associate architects.

*Photos: Jeffers Studio*

**NARAMORE, BAIN, BRADY & JOHANSON**

While the office organization is "somewhat informal, with many duties overlapping," the partners divide major responsibilities as follows: Naramore takes responsibility for school programming, design, and client contact; Bain is responsible for general programming, design, and client contact; Brady takes responsibility for paper work, contracts, and client contacts; and Johanson has the responsibility for hospital programming, design, and client contact. Except for such over-all aspects of the work, however, there is no attempt to departmentalize. "Each man is capable of handling most phases of architectural work." For mechanical and electrical work, structural work, landscape architecture, and civil engineering, the partners point out, "our office, similar to most in this area, uses subprofessional services . . . We feel this policy allows us to use top talent in these fields."

The sources of the new work that flows into the office are the usual ones of personal-contact work and professional reputation. When a commission is undertaken, the jobs are developed as far as possible in programming by the partners. Criteria are drawn up for each job in a loose-leaf notebook, indexed for each phase or function of the particular job. As the job moves through the drafting room, the note book is kept up to date, with all progress information and decisions recorded. "Preliminary work is developed in the conventional manner, with sketches, renderings, and models used as required."

The partners report that they are not particularly active as joiners, but all are members of the Municipal League; all belong to at least one college or social club, and three of them maintain memberships in the Chamber of Commerce. Johanson is a member of the Washington State Hospital Advisory Board. All of the partners are active in A.I.A. activities. Naramore and Bain are both Fellows of A.I.A.; they and Brady are past presidents of the Washington State Chapter, and Johanson has recently been elected president of the Chapter.

We asked the office how we might state their design approach or philosophy. Protesting that "expressed in words, this becomes somewhat trite," they were willing to list "straightforward, functional, economical, imaginative" as all being words that apply to the idea. "Contemporary architects since the time of Ictinus have probably used similar words to describe their intent," they comment. In the last analysis, they feel that "the philosophy of any architect can only be completely expressed in his building . . . The success of a building is probably as great as the need of explanation is small."

Above: The King County Central Blood Bank, Seattle. Joseph Wohleb was associate architect.
*Photo: Dearborn-Massar*

Above, left: addition to the Columbia Grade School, Wenatchee, Washington.

Above: The American Legion Building, Seattle —a building to house the Post offices, meeting rooms of various sizes, dining room, and cocktail lounge. The entrance foyer is to be developed as a memorial, with the entire wall opposite the entrance used for inscriptions.
*Photo: Dearborn-Massar*

# Plotting the Sun

BY JOHN RANNELLS

The directions of sunlight at noon on December 21 and June 21 have been well publicized lately. Most of us have a fair idea where the sun is in certain morning or afternoon hours, but a very hazy notion of the whole range. Only the whole year-round story is much use for intelligent planning in regard to direct sunlight.

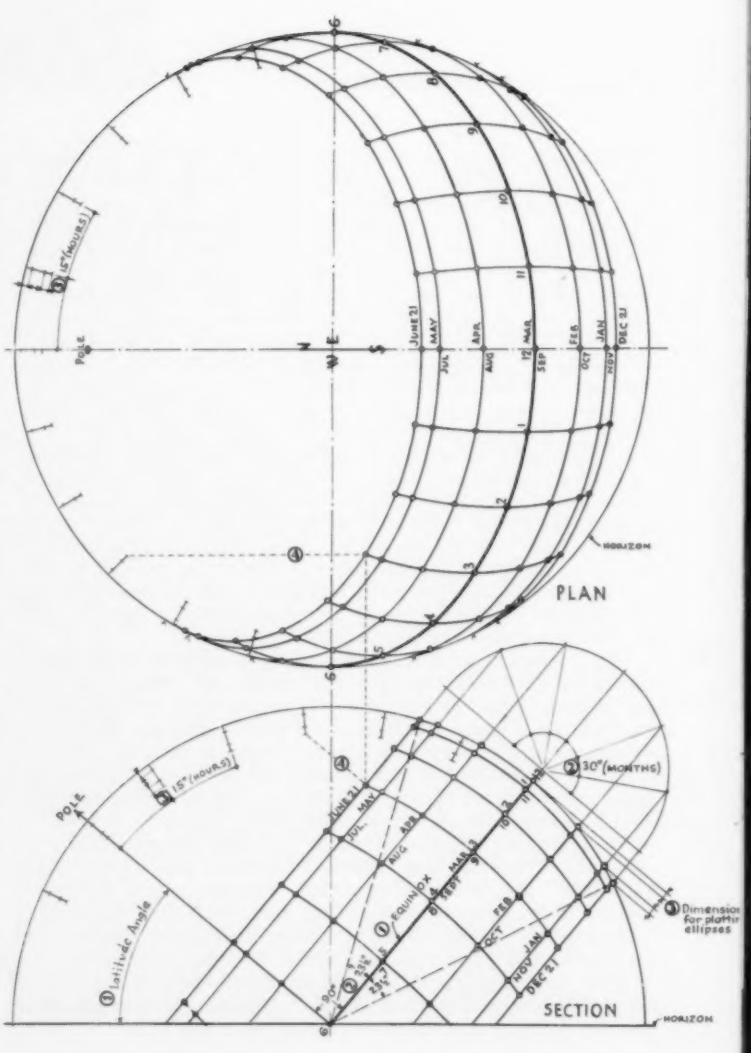
Plotting the hourly directions for each month for any latitude is not difficult—see Figure A for Lat. 40 (Philadelphia, Columbus, Denver). This diagram is a picture, in small, of the ancient and useful fiction of the "celestial sphere" around which the stars revolve and the sun runs in an ever-changing path. The most of it that we can see at one time is a hemisphere—the half that is above the horizon with us at the center and the north star at the upper end.

Note how much more reliable the warm sun is in winter—it stays completely in the southern quadrant for six hours a day for three full months. In the three months around June the sun is in the southern quadrant for only about two hours per day and sweeps nearly three-fourths around the compass from sunrise to sunset. In the months between (spring and fall) things are not so stable—the path of the sun and the day's length are changing rapidly.

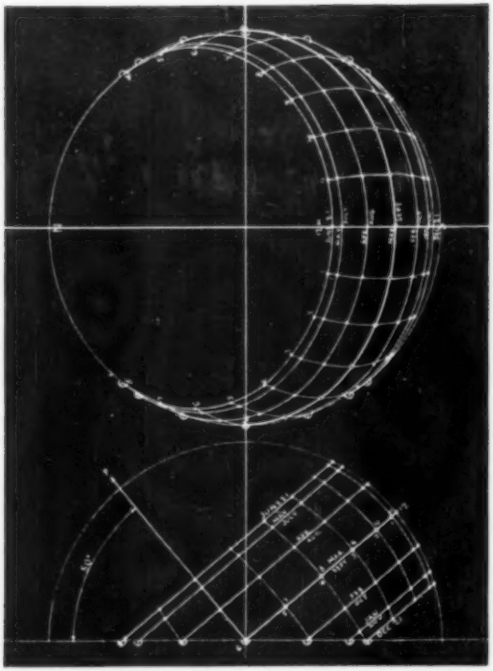
Figure B shows the same solar diagram repeated for a range of latitudes 30°, 40°, 50°, 60°,—New Orleans to Seward, Alaska, or Cairo to Leningrad. A few degrees further south (Lat. 23) and the June noon would have a straight-up sun; a little further north (Lat. 67) and there wouldn't be any sun on Christmas but the June sun would sweep the entire horizon.

The plotting of light or shadow patterns for an actual building can be done readily with one of these diagrams—see Figure C. A black and white print of the solar diagram is placed on the board and oriented with

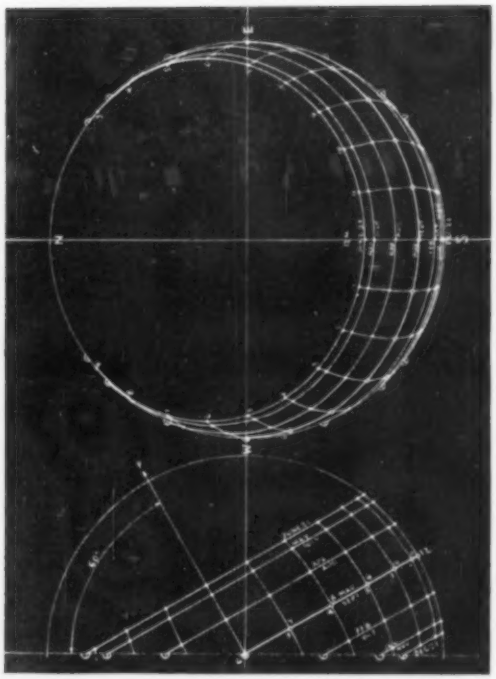
FIGURE A

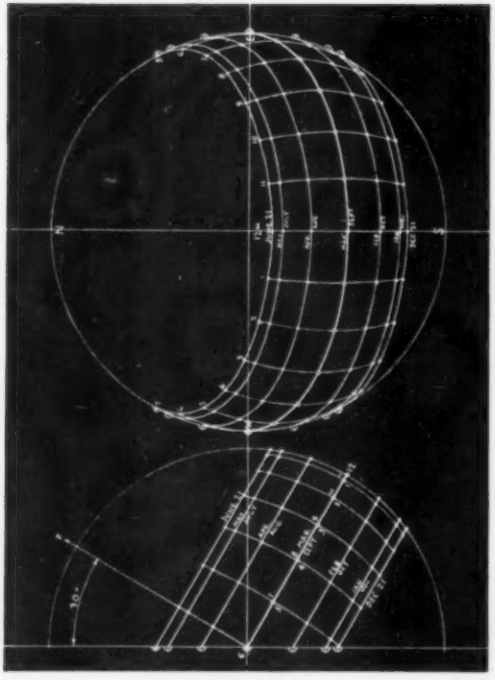


latitude 50°

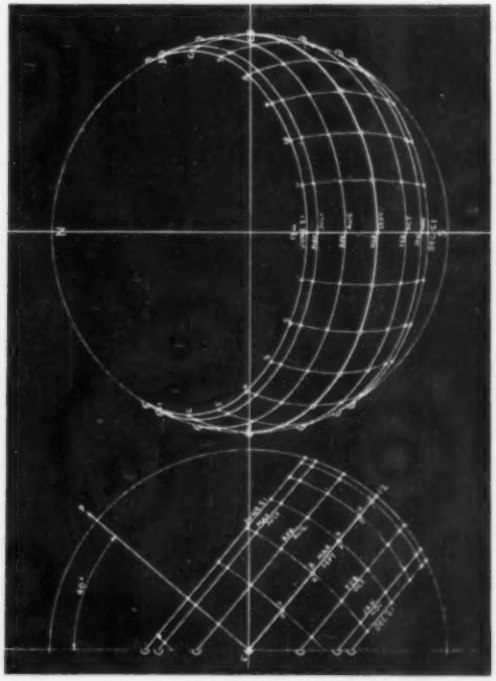


latitude 60°





latitude 30°



latitude 40°

FIGURE B

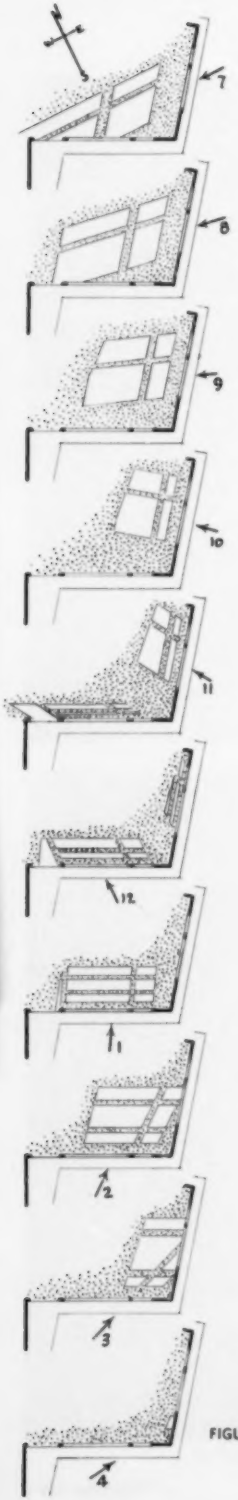



FIGURE C

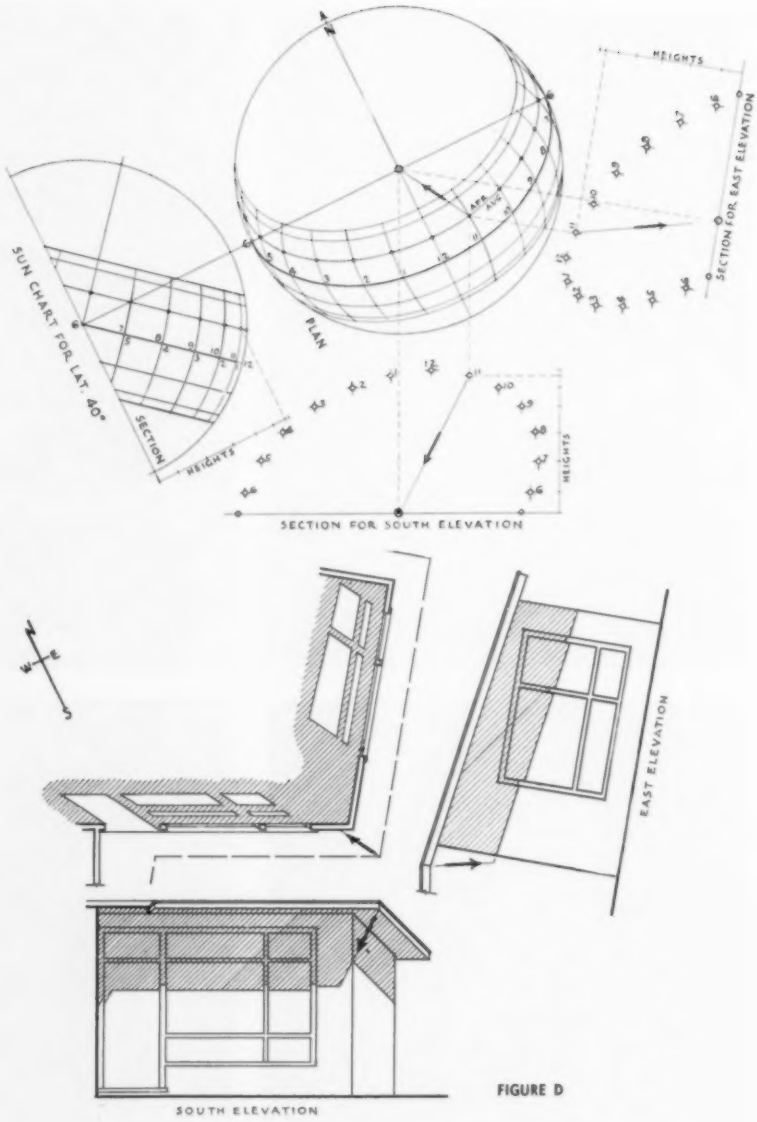



FIGURE D

the plan. Then special sections are drawn parallel to the elevations. It pays to draw the original diagram fairly small (say a 5" circle on a sheet 11" x 15") leaving plenty of paper for the special sections. In Figure C the light patterns are worked out for a particular time (11 a.m., late April or August). In Figure D the directions (from the plan and special sections of Figure C) are used to plot the light patterns on the floor for an entire day. For study purposes the patterns might better be superimposed in one composite pattern.

The same directions can be used for plotting shadows of one building on others or for designing roof overhangs or sunshades for cutting off direct sunlight in summer at predetermined times.

p/a critique

# automobile sales and service buildings

An automobile sales and service building is just an unusually specialized retail store and repair shop. The thing that makes this somewhat obscure at first glance is the very large scale of the "merchandise" that is being handled. But the parallel maintains in every respect—from ordering, to display, to sale, to delivery of purchased items.

As a result of the size factor, however, a whole series of special design problems present themselves. Usually it is desirable to have on hand and show a number of models for customer selection. At once this means a display space with more the proportions of a huge room or a stage than of the usual show window. Or it may provide, in addition, an outdoor stand or pavilion. Frequently, though not always, the need for considerable space makes it necessary to choose a location somewhere between a city's highest-rent downtown shopping center and the outlying areas. And since many, perhaps most, customers will come by car, and potential customers will have to be lured as they are motoring past, a site bordering a main artery or at least a well-traveled street is a reasonable choice. This also suggests a need to arrange display spaces and identify the concern in such a way that the whole set-up can be taken in at a glance. As a result, a rather broad design palette is usually indicated, and there is little point in either fussiness or small detail.

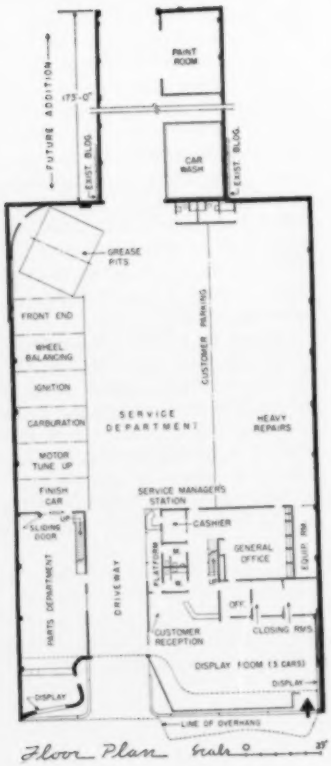
Apart from such service facilities and parts departments as the particular client may require, there are two main business areas—(1) the showroom proper, where there is room enough for customers to circulate freely, open car doors, and try out all the gadgets, and (2) some sort of office or desk space where the business of terms and signing of agreements can be handled comfortably and efficiently. As a rule, the former is also the area that the passerby sees—the come-on; the handsome, polished setting; and the office space is partially or wholly screened from public view, to offer a measure of business privacy.

The three projects included in this critique, from widely separated areas of the country, seem to us to have answered their special planning problems well and to have been taken on beyond this, in the design handling, to become highly reputable architecture for this particular business type.

Geographic locations of the three projects presented in this critique are: (top of page) New Orleans, Louisiana—Curtis & Davis, Architects; (immediately below) Maplewood, Missouri—Gruen & Krummeck Associates, Architects; and (bottom of page) Long Island City, N. Y.—Katz-Waisman-Blumenkranz-Stein-Weber, Architects Associated.

## New Orleans, Louisiana

**CURTIS & DAVIS, ARCHITECTS**



**program** Rebuilding of an automobile and service establishment that had been destroyed by fire, with the limiting requirement that the three remaining masonry walls (two side walls and rear end wall) be re-used. Three basic areas were needed—showroom and space for the sales force; parts department, sales and storage; service department. Plan to be so organized that, at some later date, expansion through to next street (property owned by the present building owner) could be accomplished with a minimum of change.

**site** A one-way artery in the downtown part of the city, with other commercial buildings adjacent.

**solution** Efficient, direct disposition of plan, with canopied display room and office area at right-hand side of front; parts department in a shop of its own at left, and the driveway through to the service department between them. The architects sought "an eye-catching appearance" from the street; with a striking, easily visible display room, yet one that would be "secondary to the product displayed." Since an important part of the owner's business is in the servicing of automobiles, an inviting readily accessible entrance from the main artery was mandatory.

**materials and methods** CONSTRUCTION: Reinforced concrete and brick foundation. *Frame:* 100-foot clearspan bowstring trusses resting on pilasters built into existing brick walls. *Walls:* 12" brick bearing walls; upper portion of front wall surfaced with baked-enamel-finish aluminum as a sign background; on lower portion, glass and brick; canopy fascia—white ceramic tile. *Floors:* reinforced concrete, except in showroom and offices, where asphalt tile is the surface. *Roof:* corrugated galvanized iron, insulated. *Insulation:* 4" wool type over office and showroom areas. *Fenestration:* metal storefront sections; polished plate glass.

EQUIPMENT: *Heating:* space heaters in general office; natural gas fuel; penthouse fans. *Lighting:* ceiling mounted fluorescent fixtures; recessed fixed and adjustable incandescent spots.

**critique** The simple handling of the building front, with organized lettering on the billboard-like upper portion at once sets this structure apart from its neighbors and does the required eye-catching job; the tile-faced serpentine fascia above the insloping glass walls of the showroom highlights the display room, at the same time that the stage thus created gives top billing to the cars displayed. Showroom lighting is ingenious in coping with a limited budget—the whole room is simply illuminated as a background, and adjustable ceiling spots (themselves arranged in an arresting free pattern) accent lighting for the automobiles.

*Curtis* *Davis*

The plan indicates the eventual extension to the rear, through to the next street. The exterior is bright and colorful—buff brick for the lower walls; white ceramic tile on the curved fascia; and a neutral terra cotta for the enamel-finished aluminum upper walls; plus, the sparkle of the glass.

*Photos: Clarence John Laughlin*

NEW ORLEANS, LOUISIANA

Office and closing rooms are separated from the front portion of the showroom simply by glazed partitions, equipped with draperies that may be drawn for privacy. The automobile showroom was probably the first type of shop to employ the now generally used open-front plan, wherein the entire space constitutes the show window.

## Maplewood, Missouri

GRUEN & KRUMMECK ASSOCIATES, ARCHITECTS

An extensive new establishment, this Midwestern sales and service building exploits an important corner site to define its numerous departments and attract the eye of the speeding motorist. A Selected Detail sheet on the main display window (top of page) appeared in the December 1949 P/A, page 87.

Right: the upper end of the building, with a truck showroom at the corner.

*Photos: Marvin Anderson Studios*

**MAPLEWOOD, MISSOURI**

**program** Five separate but related functions to be served—new car sales and display; sale of parts and accessories; service and repairs; sale of used cars; gasoline service station. Each classification to be given full importance and unified for control and management, but to be separate from the customer's approach.

**site** A 350′ x 440′ site at the intersection of Manchester Road and Laclede Station Road—both main arteries. Along Manchester Road (on the north of the site) the site slope involves a difference of 15 feet from the intersection (low point) to the upper end.

**solution** To achieve an efficient building, the architects explain, "a minimum of circulation and storage space was provided within the building proper and, where practicable, circulation of automobiles was handled outside the main structure." Maximum amount of advertising frontage desired on Manchester Road, with service department on the Laclede Station Road side. But, since both streets are important, the building is organized at an angle, giving strong emphasis to both major elements in the same facade. The two are further joined visually by the eggcrate canopy and ceiling treatment, with recessed lighting used both inside and outside. Morning traffic to St. Louis flows up Manchester toward the building; hence show windows—purposely arranged as individual units so that each car is featured—are angled for full view by passing drivers.

**materials and methods** CONSTRUCTION: Concrete foundations. *Frame:* steel. *Walls:* brick, with either brick or corrugated asbestos exterior surfaces. Interiors—plaster in offices and showrooms; glazed tile in service area up to a height of 10′-6″. *Floors:* concrete; asphalt tile in offices; terrazzo in showrooms; colored cement in service area. *Roof:* poured gypsum; built-up asphalt. *Fenestration:* aluminum frames; plate glass.

EQUIPMENT: *Heating:* radiant floor panel system, using wrought iron pipe. The outdoor receiving area adjoining the repair shop is also equipped with panel heating. Air conditioning in offices and showrooms. *Lighting:* both fluorescent and incandescent units.

**critique** The handling of the site seems excellent, making the most of the approaches from both streets. Lettering and sign design, as part of the building, is fortunate. The treatment of the separate display rooms would seem to represent the near-ultimate in the approach of providing glorified show windows for this large-scale merchandise. The numerous angles of display windows and roof lines seems a little restless in abstract pattern, but this is hardly the type of structure that was born to blush unseen. In short, we believe this job represents a genuine contribution to this field of design.

Floor Plan

Top of facing page: a closing room, at rear of one of the show windows.

Below: the concrete driveway to the service and repair department, with drive-in service window in brick wall at right.

Right: detail looking up through the separate auto show windows; manager's office at right. Lighting consists of silver-bowl fixtures in square ceiling coffers, plus adjustable spotlights to highlight automobile displays.

## Long Island City, New York

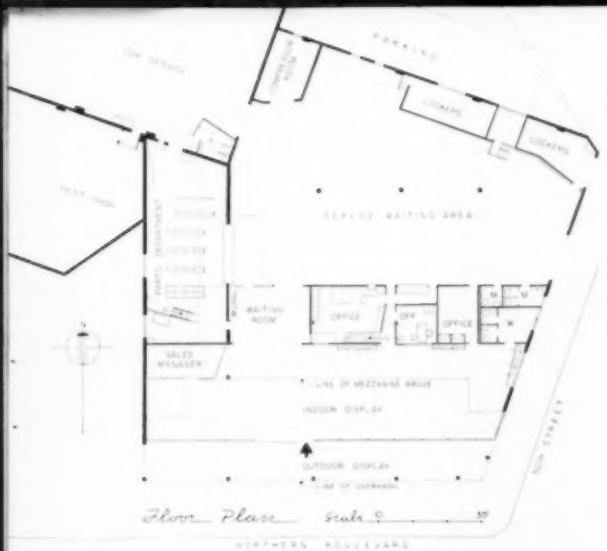
KATZ-WAISMAN-BLUMENKRANZ-STEIN-WEBER, ARCHITECTS ASSOCIATED

Top of page: general view from Northern Boulevard.

Immediately above: looking from the indoor showroom out through the southern wall to the outdoor display loggia.

Right: a view back through a glass partition to the parts department.

*Photos: Ezra Stoller-Pictor*




**program** One of the major steps in a long-term alteration job that, element by element, is making an ever more co-ordinated establishment (in line with a pilot plan initially developed by the architects) out of a thriving business that had previously grown piecemeal. The particular units presented here are the new main showrooms and their co-ordination with the parts department immediately to the rear.

**site** Level, south frontage along Northern Boulevard, a heavily traveled main artery between New York and Long Island.

**solution** Since a basic problem facing most auto showrooms is minimizing window reflection—and particularly here, where the front faces south—the architects attacked it directly, by placing the glass behind the cars. This creates a loggia-like outdoor display porch. At night, the cars are moved inside the showroom, and light background materials and a high level of illumination take over the display function. The character of the showroom interior was established by using painted, vertical wood siding and other "residential" materials. Employed in a nonimitative way, the hope was that this might suggest the relation between the car and the house. Lighting is from general cove illumination, fixed, flush downlights over work areas, and a flexible series of indoor and outdoor spots to pick up and highlight cars.

**materials and methods** CONSTRUCTION: Poured concrete foundation. *Walls:* brick. Exterior surfaces—painted brick; porcelain enamel (existing) as sign background. Interiors—stucco facing; painted brick; glass; vertical cedar siding; painted plaster; photomural; mirrors. *Floors:* concrete, cement finish; terrazzo; linoleum; asphalt tile. *Roof:* steel frame; wood roof joists; built-up roofing. *Ceilings:* hung plaster on metal lath. *Insulation:* wool type on roof. *Fenestration:* polished plate glass; show window sash; steel casement; steel industrial. *Doors:* tempered plate glass; stainless steel frame.

EQUIPMENT: *Heating:* steam radiators; hot-water radiant panel in floor at entrance; controls.

**critique** It strikes us that this showroom is a remarkably straightforward, uncluttered scheme for the sort of flexible display that the owner had in mind. The answering of the sun glare problem by simply providing a porch outside of the glass is as ingenious as, in retrospect, it seems obvious. Whether or not the use of residential materials for the showroom walls actually conveys a sense of the relation between the car and the home—and this seems a bit theoretical—there is no question that a dignified, handsome room has been developed to assist the selling of cars.

From left to right: Read Weber; Taino Waisman; Sidney L. Katz; Richard J. Stein, and Joseph Blumenkrantz.

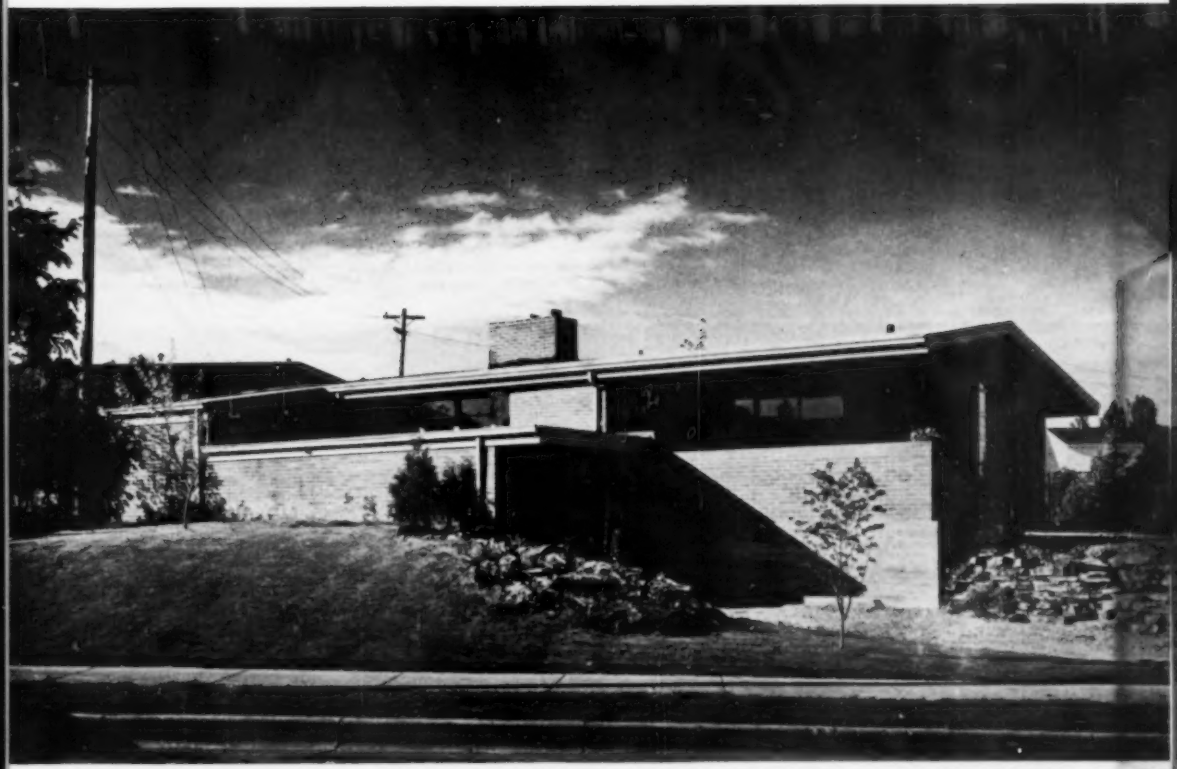
LONG ISLAND CITY, NEW YORK

Top: the parts department sales counter (itself a display case) is dramatized by a 7-foot-deep canopy, made of bright yellow-painted wood poles attached to a light steel frame which is suspended from the ceiling by cables.

Bottom: general view of the indoor showroom. The balcony leads to two private offices, toilets, a small lunch room, and a file room. At base of windows at left, note the fixed, combined ashtray and spotlight units, used for stage-lighting the cars on display.

# House: Denver, Colorado

**VICTOR HORNBEIN, ARCHITECT**



This compact small house for one utilizes the slope at the front of the lot (north) to gain an at-grade garage and driveway, with windows above, lighting the kitchen-utility room of the main floor. Placement of the house at an angle faces windows of main living rooms (right) toward the southwest and a view of the mountains. *Photos: Photography Inc.*

Left: at the living room corner, nearest the entrance, is a series of special storage units—a coat closet, with shelf and mirror on inside of door; tall narrow cupboard for card table and cards; bookshelves and a built-in desk.

Below: general view of living-dining room, with doors to terrace at right; ceiling is plywood finished; screened living porch (see also photograph on facing page) is at far end of room, beyond the brick wall.

DENVER, COLORADO

**program** Home for a woman librarian of the Denver public schools. No special requirements, other than a comfortable small house that would be easy to maintain.

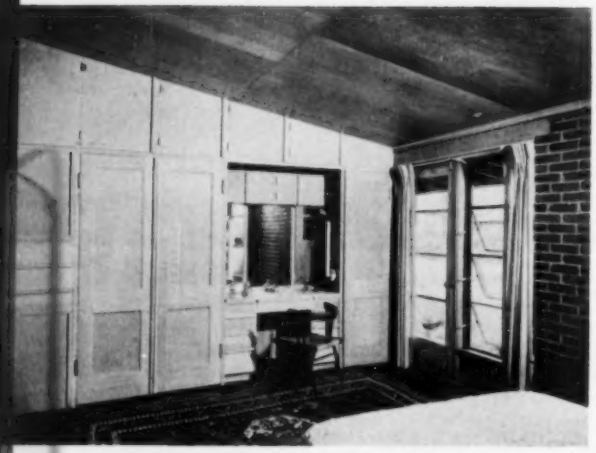
**site** An interior lot on the south side of the street, 75 feet wide and 142 feet deep; rather abrupt bank at front of lot; relatively level area at top of bank; gradual slope down toward rear of lot; mountain view to the west; near neighbors at either side.

**solution** Compact floor plan, consisting of a sizable living-dining room; combined kitchen-utility room; a single bedroom and bath, organized within a simple rectangle; extension to the north (street front) at a lower level provides garage and storage space, with interior stair giving access to this level; a roofed and screened porch off the dining end of the living-dining area could be made into a second bedroom and bath if wanted. Whole house angled on the lot to face the porch and main windows to the southwest, gaining both sunlight and a view of the Rockies. As is evident from a study of the pictures, the architect incorporated many ingenious storage spaces and elements that assist efficient housekeeping.

**materials and methods** CONSTRUCTION: Concrete foundation. *Walls:* bearing walls of cavity-brick construction, the wythes used as finished surfaces both inside and outside. *Floors:* concrete slab, on fill; asphalt tile surfacing, except in kitchen where bright yellow linoleum was used, and in the bath, where there is blue linoleum. *Roof:* 2″ x 8″ wood joists; wood sheathing, surfaced with pitch and gravel. *Insulation:* thermal—4″ wool type in roof. *Partitions:* wood stud frame, surfaced with fir plywood. *Fenestration:* sash fixed wood, ventilating aluminum awning type; crystal sheet glass. *Doors:* hollow core, fir plywood finished.
EQUIPMENT: *Heating:* hot-water panel system; gas-fired furnace; wrought iron piping. *Electrical:* fluorescent strip cove lighting; recessed incandescent units.

**the architect** *Victor Hornbein:* While a high-school student in Denver, worked in part-time jobs in various local offices; study at "Atelier Denver" under the Beaux Arts system; employed by John Gaw Meem and Hugo Zehner, Santa Fe; also, for short periods, in Los Angeles offices. Own practice established, 1940; three years with armed forces; practice resumed, 1945. Has served as instructor in design, Denver University School of Architecture.

**DENVER, COLORADO**



Left: the bedroom, with one whole wall of storage compartments of various sizes surrounding a dressing table. Note ventilating awning-type window beside door at right.

Above: detail of dressing table, with opened, mirrored cupboard doors forming a three-way mirror.

Right and below: wheel-mounted units under the kitchen work counter pull out for ready access to storage, or for easy serving of meals in the living-dining room or on the porch. The latter unit is shown being used on the porch in the picture on the preceding page.

# Interior Wall Materials for Residences

BY GROFF CONKLIN

As far as the architect is concerned, the selection of materials for the inner walls of houses is and always has been a complex problem of compromising with the client's desires, comparative costs and availabilities, and the architect's own taste and imagination. There certainly is nothing wrong with this; indeed, it is probable that these will continue to be the chief desiderata in the selection of wall materials, no matter what information is developed in this review.

The fact is, however, that there are several important *performance* factors against which a wall material should be measured. Everything else being equal, it would seem only logical that a material which best combines the various performance qualities deemed desirable in the inner walls of a residence should be the material of choice. It is the purpose of this review to provide architects with a brief analysis of these qualities, to establish insofar as possible some sensible, tested standards below which a material may be said to be unsuitable for the purpose to which the test applies, and to evaluate the various available materials and combinations of materials in terms of these standards.

### performance aspects of wall materials

The most important elements to be considered in evaluating the performance of any particular wall material, or of that material as an integral part of a wall cross-section, are:

**Strength:** compressive, transverse, concentrated, impact, and racking loads.

**Fire safety:** in minutes, or hours, of ultimate fire resistance.

**Insulating efficiency:** in conductivity "K" or conductance "C" for a material or coefficient of transmission "U" for a wall cross-section.

**Acoustical insulation:** in rate of decibel reduction of a standard sound passing through a material or wall.

**Rot resistance, insect, and rodent proofness:** the standards here are essentially pragmatic; though materials "proofed" against these enemies of the house can be tested for efficiency, no fixed standard has successfully been determined as a measuring rod.

There is no intention, in this review, of analyzing the performance of interior wall materials in relation to various climatic or regional conditions. To attempt such a study would extend the length of this report to encyclopedic dimensions, without being in any way definitive. Materials will be examined in terms of scientific standards, from which by logical extrapolation plus local experience, the architect can establish the requirements necessitated by his particular geographic location.

### standards for measuring wall materials' performance qualities

The standards described below are neither counsels of perfection, nor are they on the other hand derived from manufacturers' catalogs. They are practical judgments by highly skilled experts of what is possible and desirable in the average residence or apartment house located outside of the fire limits and building code areas of a city or town. They are not, of course, to be taken as suggested substitutes for/or modifications of the requirements of any building or fire code. In heavily built-up areas, these requirements must always hold precedence. On the whole, the suggested standards can be met within the limits of a very modest construction budget, as will be seen when the individual materials themselves are discussed.

The suggested standards, which are the outcome of many years of study by government and private laboratories, present the most reasonable compromises between ideal or perfect conditions and the costs of materials and construction techniques necessary to achieve those conditions. Most of them have been derived from tests performed by the National Bureau of Standards of the United States Department of Commerce, which for over twelve years has been engaged in a systematic examination of the materials used in residential construction. The results of these studies have been published in the Bureau's well-known series of technical reports, "Building Materials and Structures" (BMS), in which 120 titles have already appeared. In some instances the standards suggested have not actually been stated in so many words by the Bureau, but are deduced or synthesized from the data the Bureau has presented.

Other sources of information include the annual *Guide* of the American Society of Heating and Ventilating Engineers, and the Housing and Home Finance Agency's 1947 *Manual on Wood Construction for Prefabricated Houses*—these volumes providing most of the data on thermal conductivity used in this review.

### strength

In general, the strength of an interior wall material from the point of view of load is a factor of secondary importance in the strength of the total wall construction. The framing provides at least half, and often more, of the total strength; exterior wall materials add still more; and factors other than the materials themselves, such as workmanship and construction methods, often decisively affect the figure.

In a sense, it is fortunate that this is so, for the Bureau of Standards has not as yet completed its series of tests on the strength of all wall materials. It is impossible, consequently, to present a complete check-list of comparative strength standards for the various wallboards, lath-and-plaster combinations, and the like. The data presented in Table 1 are merely test results on a few specific materials or material combinations, and do not in any way pretend to offer a final standard. Rather, they merely indicate how much punishment certain types of wall construction will take, according to the tests-to-destruction performed by the Bureau.

For full data on what the tests actually are, the reader is referred to the pertinent BMS reports, particularly BMS 25, "Structural Properties of Conventional Wood-Frame Construction for Walls, Partitions, Roofs, and Floors." Wall QA, which is composed of wood lath and plaster on the inside, wood studs, yellow pine

## MATERIALS AND METHODS

**Table 1: Strength Data on Various Wall Constructions[1, 2] (See text for description of standard wall)**

| Wall material | Maximum compressive load (lb/ft) | Maximum transverse load (inside face) (lb/sq ft) | Maximum concentrated load (inside face) (lb) | Maximum impact load (inside face [3] ht of drop in feet) | Maximum racking load (lb/ft) | Source BMS Report No. |
|---|---|---|---|---|---|---|
| Stud frame only | 3680 | 182 | — | — | — | 25 (Panel QAF) |
| Wall QA (wood lath and plaster) | 8380 | 273 | 306 | 9⅔ | 2090 | 25 (Panel QA) |
| Plywood (¼" wallboard, 3/16" sheath) | 5620 | 212 | 683 | No failure at 10 ft | 1400 | 30 (Panel BU) |
| Insulite (½" wallboard, 25/32" sheath) | 6700 | 270 | 150 | 8.7 (ft) | 1540 | 31 (Panel BI) |
| Celotex (½" wallboard, 25/32" sheath) | 4540 | 288 | 106 | No failure at 10 ft | 1390 | 42 (Panel BY) |
| Homasote (½" wallboard and sheath) | 5120 | 412 | 237 | No failure at 10 ft | 790 | 48 (Panel CN) |

(1) Figures for gypsum lath and plaster and for gypsum wallboard are unfortunately not presented in the BMS series. It is assumed from other evidence that these materials are at least as strong as comparable constructions listed above.

(2) These are all of the wall sections involving the use of specific, different inner wall materials thus far published by the Bureau of Standards. Data for masonry wall constructions and many special patented types of prefabrication are also available in the BMS series, but have no application to this immediate study.

(3) Impact load in these tests consists of a sandbag 28" high and 29" wide, weighing 60 lbs. (BMS Report 2, page 11). Consequently, this is not a test for sharp impact, such as a hammer blow or a blow with a baseball or some other concentrated object. Tests for this kind of impact have never been reported by the Bureau of Standards, even though the situation is one which frequently obtains in homes, especially those with children.

## WALL MATERIALS

sheathing, building paper, and red cedar siding, is a standard construction which, with minor variations, is used throughout the tests of wall materials, the only changes being the substitution of the various wall materials being tested for the lath and plaster, and also occasionally the sheathing.

Inasmuch as the figures given in Table 1 are maxima, they obviously cannot be used as standards. They are the figures at which actual failure in the panel occurred.

As far as the walls of residences go in general, considering not only the inner surfacing materials but also the whole structural unit and the outer materials, all locally standard wall constructions are sufficiently strong to stand up under normal usage in the area to which they are pertinent—and, indeed, to withstand the most violent weather conditions likely to be encountered in a given area. Experience over more than two centuries has resulted in adequate rule-of-thumb strength standards for the walls of buildings in various regions, and many minimum strength requirements have been written into Federal Housing Administration regulations and other official documents. For anyone who is interested in the problems connected with the strength of various parts of residences, the Bureau of Standards BMS report 109, called "Strength of Houses" (1948), offers a mine of useful technical information. It is, however, essentially uninformative on the strength aspects of inner wall materials.

### fire safety

The problem of fire safety in homes, particularly in those of medium cost, is one to which much too little attention is paid. There seems to be a fairly common assumption among manufacturers, builders, home buyers, and architects—even among certain testing and standards agencies which should be concerned with the problem—that there is little or no need to provide any minimum degree of fire safety in the materials going into a residence outside the fire limits of an urban area—particularly the materials that cover the walls and ceilings inside the house.

This conclusion stems inescapably from reassuring statements by experts as responsible as insurance officials and actuaries that fires occur in homes with a frequency so small that no one particular house is likely to have a fire of any type more than once every sixty years. This truism, with its beautiful illogical assumption—actually, averages do not mean anything in this connection, and *any* one may have a fire at *any* time—is also illuminated by the fact that the National Board of Fire Underwriters, one of the groups responsible for establishing standards of fire safety for all types of construction, has nothing to offer on the problem of fire-safe materials or construction for residences beyond building or fire code limit. Yet it is in the suburban and rural areas that such a large proportion of the country's new residential construction is located and that so many devastating fires occur.

Finally, the notorious laxity of many codes applying to residential construction outside of a town's fire limits is indicated by the practically universal absence from these codes of standards for fire-safe wall materials.

It is the poorest kind of logic to base a design philosophy on the notion that the eventual probable catastrophe will never occur in the structure under consideration. If a moderate amount of fire safety can be achieved at no cost, or at most at a cost of only one to two percent more than those of a completely unprotected house, it would seem to be not only stupid but irresponsible to to ignore that safety margin.

The inner wall materials of a house should be as fire-safe as the nature of the usable materials and the limitations of budget allowance. The problem is, of course, what standard of safety in wall materials and wall cross-sections should be the minimum acceptable to the alert architect concerned with protecting his client's interests. The Bureau of Standards, in its BMS Report 92, has worked out a series of fire rating classifications for structures of different materials, design, and use, which is extremely useful in this connection.

In BMS 92, structures are divided into four types, each type being defined as a certain level of excellence of fire resistance. Types I, II, and III are primarily urban buildings—factories, office buildings, institutional structures, apartment houses and hotels, and also row-house residences built within the fire limits of most

**Table 2: Wood-Framed Partitions (Rated as load-bearing except as noted)**

| | Thickness of board or plaster in facing and ultimate fire-resistance period | | | | |
|---|---|---|---|---|---|
| | ⅜" | ½" | ¾" | ⅞" | 1" |
| | hr min | hr min | hr min | hr min | hr min |
| **Facings of boards without plaster** | | | | | |
| Fiberboard weighing 0.7 lb/sq ft | | 10 | | | |
| Fiberboard weighing 1.1 lb/sq ft | | 15 | | | |
| Flameproofed fiberboard weighing 1.6 lb/sq ft as treated | | 30 | | | |
| T & g wood boards | | | 20 | | |
| T & g wood boards with mineral-wool fill | | | 35 | | |
| T & g wood boards with asbestos paper weighing 30 lb/sq ft between boards and studs | | | 45 | | |
| Gypsum wallboard | 25 | 40 | | | |
| Gypsum wallboard with mineral-wool fill | | 45 | | | |
| Gypsum wallboard with mineral-wool fill, rated as nonbearing | | 1 | | | |
| Gypsum wallboard with mineral-wool batts nailed to studs | | 1 | | | |
| **Facings of plaster on wood lath** | | | | | |
| 1:2, 1:3 gypsum plaster | | 30 | | | |
| 1:2, 1:3 gypsum plaster with mineral-wool fill | | 1 | | | |
| 1:5, 1:7.5 lime plaster | | 30 | | | |
| 1:5, 1:7.5 lime plaster with mineral-wool fill | | 45 | | | |
| **Facings of plaster on board plaster bases** | | | | | |
| 1:2, 1:2 gypsum plaster on ½" fiberboard weighing 0.7 lb/sq ft | | 35 | | | |
| 1:2, 1:2 gypsum plaster on ⅞" flame-proofed fiberboard weighing 2.8 lb/sq ft as treated | | 1 | | | |
| 1:3, 1:3 gypsum plaster on 1" magnesium oxysulfate wood fiberboard | | 45 | | | |
| Neat gypsum plaster on ⅜" plain gypsum lath | | 1 | | | |
| 1:2, 1:2 gypsum plaster on ⅜" plain gypsum lath with 1¾" by 1¾" metal lath pads nailed 8" centers vertically, 16" centers horizontally | | 1 | | | |
| 1:2, 1:2 gypsum plaster on ⅜" perforated gypsum lath, one ¾" diameter hole or larger per not more than 16 sq in. of lath surface | | 1 | | | |
| 1:2, 1:2 gypsum plaster on ⅜" gypsum lath, plain, indented, or perforated other than as above | | 45 | | | |
| **Facings of plaster on metal lath** | | | | | |
| 1:2, 1:3 gypsum plaster | | | 45 | 1 | |
| 1:2, 1:3 gypsum plaster with mineral-wool fill | | | 1 15 | 1 30 | |
| 1:2, 1:2 gypsum plaster | | | 1 | | |
| 1:2, 1:2 gypsum plaster with mineral-wool fill | | | 1 30 | | |
| Neat gypsum plaster | | | 1 30 | | |
| Neat gypsum plaster rated as nonbearing | | | 1 30 | 1 45 | 2 |
| 1:2, 1:3 portland cement plaster | | | 30 | 45 | |
| 1:1:30.2, 1:1:30:3 portland cement and asbestos fiber plaster | | | 45 | 1 | |
| 1:5, 1:7.5 lime plaster | | | 30 | | |
| 2:1:8, 2:1:10 lime and portland cement plaster | | | 30 | | |
| 2:1:8, 2:1:12 lime and Keene's cement plaster | | | 45 | | |

towns. They do not apply in most instances to the free-standing residence in suburban or rural surroundings.

Type IV refers to buildings of wood construction, either all-wood throughout, or masonry veneered or provided with some other incombustible exterior finish. Most, if not all, residences obviously fall under Type IV. In the Bureau's method of subclassification, Type IV is divided into two parts. Type IV-A refers to wood construction with a ¾-hour fire resistance rating or better; Type IV-B is wood construction with less than a ¾-hour rating. No home should be built of materials and with construction methods which would take the structure out of the Type IV-A class —that is, which would provide less than ¾-hours fire resistance, as established by Bureau of Standards tests. Particularly since this rating can be achieved with low-cost and readily accessible materials, to recommend less would be to approve an entirely unnecessary risk.

The Bureau of Standards classifications have been arrived at in entirely modern and scientific manner. BMS 92, on page 5, says: "The fire-resistance classifications of building types heretofore generally have been defined in terms of established constructions and materials. The classification contained (in this report) is based on *performance* in fires and fire tests, graduated within each type." (Author's emphasis.) By establishing performance ratings, the Bureau has made it possible for architects to use *any* materials which actually perform in accordance with the standards set — provided, of course, that the local building authorities permit their use.

Table 2, containing ultimate fire-resistance period ratings for wood-framed walls and partitions, is taken from BMS 92, page 34. It establishes fire-safety periods for a wide variety of wall constructions commonly found in wood-frame buildings.

### insulating efficiency

The only reason for discussing insulating efficiency in connection with wall materials used inside the house is the fact that so much emphasis in the past ten or more years has been placed on the values of the so-called insulating wallboards. When other types of wall materials are used, insulation is provided by placing noncombustible wools or batts between the studs of a wall and the joists of a ceiling exposed to an unheated attic. The various qualities of the insulating wallboards themselves will be discussed, along with other specific wall materials, in Part II of this article, which will be published in the October 1950 **P/A.**

Meanwhile, to establish a standard for insulating efficiency, both in walls and in ceilings or attics, the lowest design temperature of the region in which the house is to be built must be known, and must be applied to the formula for figuring the "U" factor or coefficient of heat transmission of a given construction. According to the Housing and Home Finance Agency's *Manual on Wood Construction for Prefabricated Houses*, page 118, "It has been generally accepted that a proper air temperature for residences is 70°F but no standard has been so far established for the surface temperature of enclosing floors, walls, and ceilings. It is generally agreed, however, that the closer these surface temperatures are to 70°F, the greater is the degree of comfort, and that surface temperatures more than 10°F lower than the air temperature is a prominent cause of discomfort. A standard for surface temperature of not less than 64°F is suggested as one that is reasonable from the standpoint of comfort, and practical and economical from the standpoint of availability of insulating materials."

To arrive at an accurate analysis of what is required to deliver an inner wall surface temperature of 64°F in various minimum design degree zones in this country is far beyond the scope of this review. The manual quoted above gives, on page 127, a series of simple equations for arriving at the necessary amount of insulation required, given the minimum design degree for the region in which the house is to be built. These equations will prove essential to any architect planning to work out his own insulation data.

With the exception of the insulating wallboards, no standard inner wall materials have insulating values of a sort which affect the insulation requirements to any great degree; if they did, insulation itself would have proved unnecessary in most homes. The actual insulating qualities of common wall materials and wall con-

structions are presented in abbreviated form in Table 3, which is a cut-down version of a much longer table appearing on pages 125-126 of the manual quoted above. It omits all masonry and roofing materials, and several other materials and constructions not ordinarily found in residences.

**Table 3: Conductivity or Conductance Values for Materials or Air Spaces Expressed in British Thermal Units Per Hour Per Square Foot Per 1°F. Temperature Difference on Opposite Sides of the Material[1, 2] (The lower the conductivity, the better the insulating value)**

| Material | Description | Conductivity or Conductance |
|---|---|---|
| Air bounded by ordinary materials | ¾" or more in width | Through walls 1.10 |
| Space divided by double aluminum foil | 1½" or more in width | Through walls 0.23 |
| Batts and blankets (also loose fill) | 1" thick, mineral or vegetable fiber, or animal hair | 0.27 |
| Cork board | 1", no added binder | 0.30 |
| Gypsum board | ⅜", plain or decorated | 3.70 |
| Gypsum lath & plaster | Plaster assumed ½" | 2.40 |
| Insulating wallboard | ½" plain or decorated | 0.66 |
| Insulating lath & plaster | ½" lath, ½" plaster | 0.60 |
| Metal lath & plaster | Plaster assumed ¾" | 4.40 |
| Plywood (C depends entirely on woods used. No one figure can be given, since several types differ.) | | —— |
| Wood lath & plaster | Standard thicknesses | 2.50 |
| Insulating fiberboard sheathing | 25/32" thick | 0.42 |
| Wood (probably pine) | 25/32" thick | 1.02 |
| Wood plus building paper | 25/32" thick plus the paper | 0.86 |
| Vermiculite | 1" thick, expanded | 0.48 |

(1) A much wider variety of insulating materials, most of them actually reported by trademark, is listed in the Forest Product Laboratory's *Wood Handbook* (1940), on pages 300-302. Unfortunately, a number of the products there listed are no longer available; but for those which are, accurate C factors are given: the only source in government where products are actually evaluated by brand name.

(2) Conductivity "K" and Conductance "C" are to all intents and purposes the same factor when a material is being considered as part of a wall cross-section. "K" refers to the time rate of heat flow through a *homogeneous* material under study conditions, a homogeneous material being one in which the value of "K" is not affected by variation in thickness or size of sample within normal ranges used in construction. "C" refers to specific materials as used, either homogeneous or heterogeneous, and particularly covers materials of specific thicknesses. "K" is the rate per inch of a homogeneous material; "C" is the rate for a material of a specific thickness. "C" is also used to refer to the conductance of air spaces.

#### acoustical insulation

The ability of a wall material to deaden sounds passing from one room to another or from outdoors into the building is a further important element in its over-all value. The Bureau of Standards has run a series of tests of wall and floor panels which accurately measure the acoustical efficiency of most of the commonly used materials and constructions, and has reported the data in BMS 17, plus two supplements.

Sound reduction, like sound itself, is measured in decibels. In order to arrive at a standard for effective *sound transmission loss* in walls, or the amount to which a test noise is reduced in intensity when passing through the walls, the author had to look elsewhere than in BMS 17, since it seems to be Standards policy never to recommend standards in its technical reports.

In *Building Insulation*, second edition, published by the American Technical Society, on page 281, the author Paul D. Close has stated, ". . . it is somewhat hazardous to attempt to establish hard and fast rules relative to the proper sound-reduction factors required under various conditions. With an average reduction of 25 decibels, normal speech can be understood quite easily and distinctly through the wall or partition. With a reduction of 30 decibels, loud speech can be understood fairly well on the opposite side of a partition if conditions are quiet. With a reduction of 35 decibels, loud speech is audible but not intelligible on the opposite side. With a reduction of 40 decibels, normal speech is not audible and loud speech can be heard faintly, but cannot easily be understood, and such walls may be considered as relatively "sound proof." Partitions between apartments should have a factor of at least 40 decibels . . . the exact requirements will depend on local conditions."

Summarizing Mr. Close's conclusions, it may be safely stated that walls and partitions, to meet a good sound transmission loss standard, should be built of materials which will cause the finished wall to reduce sound transmitted through it by 40 decibels. The same thing holds true for ceilings under second floors. If materials and constructions have this acoustical insulating efficiency, it will mean that only the unusual and excessive noise, such as a shout, a radio turned on extra loud, or a dropped object will be heard in other rooms—provided, of course, that doors and windows are closed. The acoustical efficiency of any wall is reduced practically to zero if there is an unprotected opening in it.

Table 4 presents a selection of test results for walls of various types of materials and constructions. For more details on these tests, and for tests of many other types of constructions, the reader is referred to BMS 17 and its two supplements.

#### decay resistance, insect and rodent proofness

No standard inner wall material is waterproof; there is no particular need that it should be. It is not the function of an inner wall material to keep out the rain, or even to be *completely* resistant to leaks caused by faulty plumbing or inadequate window or chimney flashing or roof shingling.

It is important, though, that a material be strong enough so that it will not simply dissolve and fall in a wet mass or a weighty sheet of material when weakened by such exterior or interior leaks. This porousness and weakness is one of the most serious defects of plaster, but when plaster is applied over a strong paper-encased gypsum lath the danger of the plaster being so damaged by moisture that it may fall is considerably less than when wood lath is used as a plaster backing.

Though high moisture resistance is not an important desideratum in a wall or ceiling material, resistance to decay and to attack by termites, rodents, and other small deer that are prone to infest residences is a matter of considerable consequence to the home owner. There is no scien-

**Table 4: Sound Transmission Loss in Typical Wall Structures (Wood stud frames used in all panels listed)[1]**

| Panel description | Sound transmission loss, average over 128 to 4096 sound cycles per second. | Sound transmission loss, average over 256 to 1024 sound cycles per second. |
|---|---|---|
| Wood lath, scratch and brown coats of lime plaster, smooth white finish. 15.6 lb/sq ft | 42.1 | |
| Wood lath, scratch and brown coats of gypsum plaster, smooth white finish. 17.4 lb/sq ft | | 40.9 |
| ½" Insulite applied to both sides, joints filled. 5.1 lb/sq ft | | 29.4 |
| ½" Insulite, scratch and brown coats of gypsum plaster, smooth white finish. 13.3 lb/sq ft | | 47.9 |
| Gypsum lath nailed to studs, nails approx. 6" apart, scratch and brown coats of sanded gypsum plaster (½"), smooth white finish. 15.2 lb/sq ft | 41.1 | |
| Gypsum lath held on with special nails with large heads, nails driven between lath sheets; scratch and brown coats of sanded gypsum plaster (½"), smooth white finish. 15.7 lb/sq ft | 47.7 | |
| Gypsum lath attached to studs by spring clips, scratch and brown coats of sypsum plaster (½"), smooth white finish. Weight not given | 51.8 | |
| Perforated gypsum lath attached to studs with clip consisting of coiled spring and piece of heavy wire extending across face of lath and interlocking with adjoining clip; scratch and brown coats gypsum plaster ½" thick, smooth white finish. 16.4 lb/sq ft | 48.3 | |
| 3/8", 3-ply plywood both sides, light cotton fabric glued to one side, heavy cotton duck to the other. 4.57 lb/sq ft | 31.1 | |
| ¼" plywood glued to 1" by 3" studs, ½" plasterboard nailed to both plywood faces. 6.6 lb/sq ft | 40.4 | |

(1) Except where noted, studs are standard 2" x 4" in size.

tifically reliable method of establishing standards in materials for this sort of protection, both because materials themselves differ so greatly in their condition and susceptibilities, and because construction techniques play a so much greater part in insuring protection from these enemies of the house than do the materials themselves.

Perhaps the best rule to follow inside the house, where the dangers of decay, termite and rodent attack are much less than in the outer layers of the inner walls, roofs, and floors, is to avoid using materials that are notoriously subject to this kind of hazard, and otherwise to make sure that the outside construction of the dwelling is so tight that the inside automatically will be safe. Inorganic materials, though they may tend to disintegrate when moistened, will not rot; neither are they susceptible to attack by insects or rodents. Organic materials, on the other hand, in general disintegrate less quickly when damp, but will decay; they are also the foods of choice, so to speak, for termites, rodents, and the like. As rules of thumb these facts have some value; but they cannot be translated literally into practice; otherwise no wood ever would be used in residential construction!

Woods and other organic building materials can be protected against this kind of hazard by painting and by special types of treatment sometimes necessary in areas where the problem is known to be acute, particularly when the materials must be either in contact with, or close to, the sources of the hazard — the ground, basement walls unprotected by termite shields, and so on. There are on the market several especially treated woods for use in climates where decay and termite attack are serious hazards; and also some manufacturers of the lightweight insulating fiberboards claim that they have protected their products from these hazards by special patented processes. These claims may indeed be true, but in the absence of impartial and scientifically conducted tests, they must be viewed with some scepticism. Particularly to be borne in mind is the statement (from the Department of Agriculture's Farmar's Bulletin No. 1911, page 27, edition of 1946) that "Brush, dip or spray treatments usually give only very slight penetration and, consequently, only slight protection. Such superficial treatments usually do not add more than 2 to 5 years to the life of seasoned wood and are of little or no value where green material is used." Deep, integral penetration by pressure methods or by actual mixing during the manufacturing process—particularly in the case of pulp boards and the like—is the only sure method of protecting organic wall materials from these house hazards.

With this, the review of performance standards for inner wall materials is completed. Part II of this review will contain an analysis of the various types of materials used for wall surfaces from the point of view of the standards outlined above.

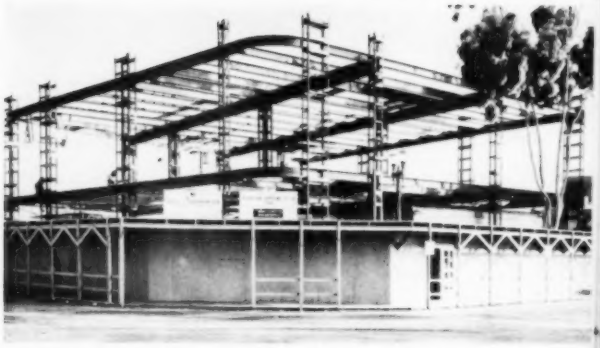


Figure 1, above: completed steel framework of Associated Telephone Company Building, Laguana Beach, California. Designed for welding continuity and rigidity, this framework was erected in 26 hours by six men.

*All photos: Ira Carroll: courtesy of The Lincoln Electric Company.*

# Design for Welded Continuous Steel Framing

By J. B. McCORMICK*

The people of California have an uncanny ability to make the most of their resources and can even turn disadvantages into assets. Because of slight earth tremors, which in other parts of the world are called earthquakes, their building codes require that all buildings be designed and built to resist dynamic loads resulting from both seismic and wind forces.

Maurice Sasso, a consulting engineer of Los Angeles, has turned the tables on this local peculiarity. He has designed and erected welded continuous steel frames for buildings that not only meet code requirements but also make better and less expensive structures in the bargain.

Sasso recently designed an all-welded steel frame building for the Associated Telephone Company at Laguana Beach. The frame was designed as a riveted structure and also as an all-welded system. From actual bids obtained from the steel fabricator, a total saving in tonnage of 25.7 percent was possible with the all-welded system; the saving in cost of the welded frame over the riveted frame amounted to 18.7 percent in the contract price of the steel frame alone.

Since the riveted frame required girders which were 9" deeper than the haunched continuous girders used in the all-welded design, the present building would have been 1'-6" higher in order to meet the client's required clearances, if the riveted frame had been adopted.

The estimated saving in the additional height of walls, ducts, conduits, pipe risers, etc., when added to the saving of the frame alone amounts to 32 percent of the bid price of the welded frame. In other words, it would have cost the owner a total of $8454 more if the riveted frame had been adopted.

The unusual design features contributing to the over-all lower cost of this type of all-welded continuous steel frame are illustrated in Figures 1 through 6, which are photographs taken at the job site of the Laguana Beach Telephone Building.

A unique column structure is the basis for many of the design's advantages. The columns are built-up members consisting of four angles joined together by batten plates, lattice bars, or solid plates. The column is an open crate in section; angles which form the column are spread apart sufficiently to permit the beams and girders to pass through the center of the column without being interrupted at the face of the column. Because of the spread of the angles, the column is capable of resisting larger vertical loads and larger bending movements than an H column of the same cross sectional area. This open crate section, with the beams and girders passing *through the columns*, is the key to the simplicity of attaining continuity and rigidity in the frame and contributes to the over-all economy.

Columns for the Laguana Beach Telephone Building were fabricated in the shop, two stories in length, and trucked to the site for erection. The wall columns were made wider than the square interior columns to provide economically the required resistance to seismic forces.

Figures 2 and 3 show the two types of anchorage used for these columns. The outside wall columns have a split base plate—one plate for each pair of legs. Four bolts bedded in the concrete foundation anchor the column in position. The interior columns rest on solid base plate and are anchored to the concrete foundation by four bolts. The rods seen in these details of the column bases are added

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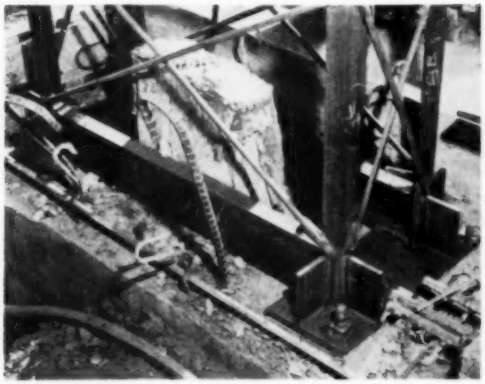
Figure 2, below: anchorage for outside wall columns. Split-leg type anchorage eliminates solid base plate.

Figure 3, right: anchorage of interior columns. Bars on columns provide added rigidity in handling and erecting.



during fabrication to give added rigidity during shipping and erection.

Freedom for members to pass through the open crate column section permits the use of multi-span girders. The only limit to the length of girders in this type of design is the practicability of handling on the individual job. In this case two spans are covered with a one-piece girder 60′ in length. The remaining span consists of one 30′ piece which is field spliced to the 60′ member. The 27WF94 girders are reinforced with plates welded on the top and bottom flange across the supporting column extending approximately one-tenth the span length past the face of column. A two span girder weighs approximately 5700 pounds and is erected in a single piece, thus reducing the number of field splices.

The required section for a simple span riveted girder is 36WF160, which is 9″ deeper than the 27WF94 haunched girder used, thereby reducing the height of the present two story construction by 1′-6″, as mentioned before. Note that if a continuous girder of uniform section had been used instead of a haunched girder, the required section would have been a 33WF130, which clearly shows that an additional saving is always realized by using haunched members instead of uniform sections in a continuous frame; this is true for girders and for beams as well.

A single 60′ girder can be erected in total elapsed time of 3½ minutes as proven on this job and on others previously erected.

Figure 4 illustrates how this unusual erection time is made possible. Three men, one on each column (which serve as ladders), simply guide the girder into the column through a door or port which is made in the column during fabrication. Two of the four column legs are cut in the shop and bolted back into place to facilitate handling. When the girder is hoisted into position, the doors in the column are opened, the girder is guided into the columns, then the doors are welded. Once the girder is in place, it is impossible for it to fall out. The bottom flange of the girder is supported on brackets welded to the column.

All beam-to-girder connections are also made fully continuous. The beam-to-spandrel connection is similar in type but not fully continuous and is shown in Figure 5. The top flange of the floor beam is superimposed on top of the spandrel flange.

Figure 4, above: one of the 60′ two-span pieces of the main girders being erected. They are raised and inserted into the open crate section columns in 3½ minutes.

Shear connection in the web of the spandrel is made with an angle.

A beam-to-girder connection is shown in Figure 6. The web of the beam is coped so that its top flange will be superimposed on the top flange of the girder. The opposing top flanges of the beams are butt welded and the bottom flanges are welded to the girder web to produce full continuity. The overlaying of the beam flange on the girder flange eliminates the necessity for erection clips and bolts. The shelf angle is used for the shear connection.

Two narrow plates are placed between the top flange of the beam and the top flange of the girder. These plates serve to give an even bearing at this connection which otherwise would be prevented by the ragged edge on the web left in the coping operation. Another cover plate is placed over the top of the joint and also one on the bottom flange. These plates are primarily designed as haunches at the support to reduce the steel section required at midspan. An unbalanced amount of plating between the top and bottom flanges makes it possible for the compression butt weld to work at 20 kips per square inch, while the tension butt weld is working at 16 kips per square inch as required by the local building code.

Due to the interrelation and integration of the columns, girders, and beams at the connections, these members will safely resist any severe or adverse work to which they might be subjected—such as carrying heavier loads than those designed for, dynamic forces due to unusual wind and/or earthquake, repetition and reversal of stresses, etc.

The erection time of this 111 ton job was 26 hours; a six-man crew, including the crane operator, was employed. The erector stated that a comparable riveted frame would have taken about 45 to 50 hours.

From data collected in the construction of five different all-welded steel frame structures, it has been found that this type of frame performs the following savings in the frame alone:

(a) It saves steel because full continuity is developed in the design.

(b) Saves time in shop details and drafting due to the simplicity of the joints.

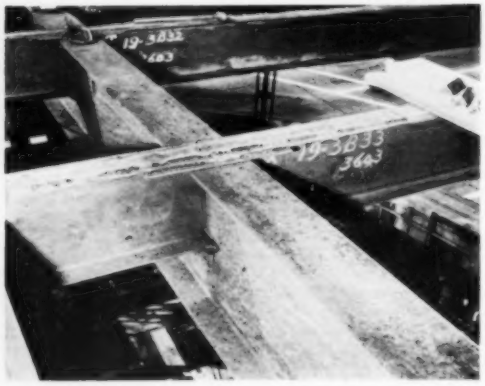
(c) Saves time in fabrication due to fewer and simpler joint details.

(d) Saves time in erection because fewer pieces are handled; the number of field connections is greatly reduced and their execution considerably facilitated by the simplicity and accessibility of the joints. Because all down-hand welding is employed, all beam-to-girder connections are made without the use of scaffolds.

Quotes from the erector: "with this type of frame twice as much tonnage can be thrown up in a day than with a riveted type frame; the welded joints are completed in 52 percent of the time required for riveted joints."

Figure 5, left: erection door in column being shut; this is only place where welding scaffold is required. Detail of beam-to-spandrel connection is shown at right.

Figure 6, below: beam-to-girder connection showing full continuity. Cover plates on top and bottom flange are used to haunch beam at the support.



*In this specification, the last of a series on electrical work (for Parts 1 and 2 see November 1949 and April 1950 PIA), the principles of "streamling" have been applied to hospital signal systems. Although space limitations prohibit a typical specification for each of the many systems available, a method which may be used for all has been illustrated in this article.*

# Streamlined Specifications: Electrical Work, PART 3

BY MORTON ISAACS* AND BEN JOHN SMALL**

## PART 5—NURSE CALL SYSTEM

**1. definitions**

(a) Definitions contained in "American Standard Definitions of Electrical Terms" published by AIEE govern terms used herein.
(b) Call station. Assembly of equipment at location from which call for nurse (or aide) is originated.
(c) Dome station. Assembly of equipment over (or at) entrance(s) to area(s) wherein call stations are located; it provides visual signal in response to call station.
(d) Annunciator. Assembly of equipment which visually indicates and audibly sounds signals originated at call stations. Visual indicator identifies (by letter, number, or other code) call station at which signal originated.
(e) Duty station. Assembly of equipment providing visual and audible signal in response to call station signals.

**2. operation(1)**

(a) Signal from call station:

1. Light lamps at bedside, dome station, duty station, and annunciator.
   a. All lamps: remain lighted until call station button is manually reset.
2. Sound audible signal at duty station and annunciator.
   a. Audible signals: sounded only during time call station button is fully depressed beyond normal "on" position.
3. Light lamps, sound buzzers of signals associated with call station if plug is removed from receptacle.

**3. general**

(a) System: 12 or 24 volts, locking button type, with indicating lights and audible signals.
(b) Call stations, duty stations, annunciators, dome stations: product of one manufacturer or assembler regularly established and engaged in production and assembly of signaling equipment.

**4. call station**

(a) Consist of flush (5-prong) receptacle, pilot light, plug, flexible cord, locking type push button, cover plate, all suitable for mounting on standard, recessed, wall type, outlet box, number of gangs as required.
(b) Flush (5-prong) receptacle: polarized, circuit closing type similar and equal to (insert manufacturer's name and catalog number). Provide one plug substitute for each standard plug; to be used when call station is not in operation.
(c) Pilot light: candelabra base, 75-watt, 125-volt socket, 3-candelpower G-6 lamp with translucent plastic or glass cap over lamp.
(d) Plug: multipole, suitable for use with receptacle described in (a) above.

* *Guy B. Panero, Consulting Engineers*
** *Associate, Alfred Hopkins & Associates, Architects*

(e) Flexible cord: 6'-0" length, of required number of stranded 18-gage rubber insulated copper conductors enclosed in washable rubber jacket.
(f) Push button: locking type; contacts: sliding phosphor bronze; housing: molded plastic, color as approved; similar and equal to (insert manufacturer's name and catalog number).
(g) Cover plate: .060" thick brass, satin chrome (plate) finish. (3) Types: as required to cover nurses' call station.

**5. dome station**

(a) Consist of plate, candelabra screw base socket, 3-candlepower G-6 lamp, translucent glass (or plastic dome) all suitable for mounting on standard, recessed, wall type outlet box; number of gongs as required.
(b) Plate: .060" thick brass, brushed finish,(3) size as required to cover station(2) and support translucent dome.

**6. annunciator**

(a) Consist of numerical indicator for each ward or room (or area otherwise designated); indicator lighted in response to call station signal. Audible signal: soft tone buzzer; switch: cut out buzzer, lamps, and candelabra screw base sockets.
(b) Panel type: suitable for flush mounting.(4, 5)
(c) Front panel: framed glass on hinge providing access to mechanical and electrical parts.
(d) Lamp: 24-volt,(6) 3-candlepower G-6 lamp, candelabra base.
(e) Trim (glass frame).(3)

**7. duty station**

(a) Consist of cover plate, candelabra screw base socket, lamp, translucent glass (or plastic dome) buzzer, buzzer cut off switch.
(b) Cover plate: .060" thick brass, brushed finish,(3) size to cover station and support translucent dome.
(c) Buzzer: soft tone (insert manufacturer's name and catalog number).
(d) Entire station: suitable for mounting in standard, recessed outlet box, number of gongs as required.

**8. transformer**

(a) UL standard for specialty transformers. Install in flush(7) mounted cabinets.(8)

**9. wiring**

(a) Conform to Part 3(15) of this specification and NEC.
(b) Raceway: electrical metallic tubing except in floor slabs where rigid conduit installed.
(c) Conductors: copper, 16-gage, insulation as per NEC.

## PART 6(9)—RADIO AND PUBLIC ADDRESS SYSTEM

**1. definitions**

(a) Definitions contained in "American Standard Definitions of Electrical Terms" published by AIEE govern the terms used herein.
(b) Bed station. Outlet and selector unit (located by symbol or drawing); adjacent to patient's bed, suitable for connection of bedside reproducer.
(c) Bedside reproducer. Pillow speaker, headset or other sound reproducing unit suitable for connection to bed station and use of individual patient or listener.

**2. general(10)**

(a) Equipment: product of one manufacturer or assembler regularly engaged in manufacture, assembly, and distribution of radio and public address systems.

**3. operation and description**

(a) Radio System:
1. Four channel system controlled thru console type control desk. Control desk operator selects; radio tuners, transcription units, or microphones at remote locations. These pass thru amplifier and thru hospital distribution system to bedside reproducers and other sound reproducing units thruout project.

(b) Public address systems:
1. Auditorium. Microphones pick up signals which are carried to amplifier equipment and then distributed to loud speakers in auditorium.(11)
2. Surgery. Microphone picks up surgeon's voice; signals are amplified and reproduced in viewing gallery. No connection between this system and any other system.

**4. bed station**

(a) Consists of cover plate, flush outlet for jack type plugs, 5-position selector switch, resistor, and terminal strip.

(b) Cover plate: .060" thick brass, brushed finish.[3]
(c) Flush outlet: similar and equal to (insert manufacturer's name and catalog number).
(d) Selector switch: similar and equal to (insert manufacturer's name and catalog number).
(e) Mounting height: 4'-6" above finish floor.
(f) Resistor: fixed type and series with selector switch and receptacle contacts.
(g) Terminal strip: mounted in outlet box to permit soldered connection between all components of bed station and distribution wiring.

**5. bedside reproducer**

(a) Pillow speaker: permanent magnet type; diaphragm; plastic body approximately 1⅛" deep and 3½" diameter; signal voltage: between 10 and 25 volts; impedance: approximately 12,000 ohms at 1000 cycles; frequency response: 50 to 4000 cycles without noticeable distortion; weight including cable: approximately 8 ounces; unit design: permit under pillow operation and sterilizing.[13]
(b) Headset:[12] shape similar to stethoscope; arms: plastic tubing; ends: rounded to permit comfortable insertion into patient's ears; reproducer: mounted where arms join, permanent magnet type, normal input 0.02 watt; impedance: approximately 12,000 ohms at 1000 cycles; frequency response: 50 to 4000 cycles without noticeable distortion.[13]

**6. loudspeakers**

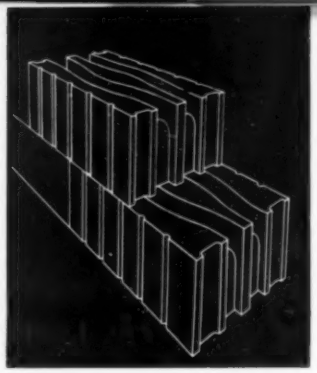
(a) Permanent magnet type.
(b) Cone section: 7" diameter, front covered with suitable fabric; color: blend with housing or trim as approved.
(c) Power handling capacity: 5-watts minimum.
(d) Coupling transformer: with 3 taps minimum for matching.
(e) Frequency response: 80 to 7000 cycles without noticeable distortion.
(f) Surface type loudspeaker cabinet:
  1. Wood, 1000 cubic inches minimum.
  2. Provided with concealed supports.
  3. Finish:[14]
(g) Flush type loudspeaker cabinets.
  1. Box: 16-gage with acoustical lining to match speaker characteristics.
  2. Trim: 14-gage.[14]
  3. Trim in psychiatric areas: cast metal grille, maximum opening: 1"; secure with tamperproof screws.
(h) Control switch.
  1. Loudspeaker or group of loudspeakers in one room: provided with selector switch similar and equal to (insert manufacturer's name and catalog number).
  2. In psychiatric areas, locate switch at nurse's control station.

## REFERENCES


1. This illustration deals with one type of "silent" nurse call system; other types include fixed buttons at some call stations, vocal communication between call station and annunciator or nurse's station. As these specialties are not necessary for purpose of this article, all description is omitted.
2. It is authors' opinion that drawings should include details of station.
3. Specify plate and finish as required by project.
4. Or, as otherwise indicated by symbol or note on drawings.
5. Number of numerical indicators as shown in schedule on drawings.
6. Voltage same as system operating voltage.
7. Or surface, if desired.
8. Describe trim, lock, etc., as required by box detail.
9. In view of many variations that are possible (and practicable) in these systems, the authors have selected the Corps of Engineers Guide Specification, CE 303.13, as a basis for this illustration. Deviations are the authors' choice for purposes of this illustration.
10. Insert paragraphs headed General, Operation, etc., in similar manner as in all parts of specification.
11. Speakers may be located in areas external to auditorium.
12. Indicate quantity of each to be furnished, provide spares.
13. Recommend these paragraphs to be followed by "similar and equal to (insert manufacturer's name and catalog number)."
14. Insert finish as "walnut," "as per sample," "satin chrome," etc.
15. See November 1949 **P/A.**

# p/a products

## new block integrates heating, cooling with wall structure



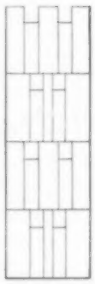
A new building block which integrates warm air radiant heating and cooling with the wall structure has been invented by A. Ferraro, of Geneva, Switzerland. Known as Climabrique (weather brick), this product can be manufactured of concrete, clay, or other plastic materials. The cost of a wall built with this block is said to be no more than that of a wall erected with ordinary construction materials, and in addition, radiant heat can be provided throughout an entire building without pipes, ducts, or radiators of any kind.

The blocks are designed so that when laid up in normal manner, continuous channels are formed. These blocks are composed of three walls, two exterior and one interior, separated by bridges which are integral with the block itself; two uninterrupted air channels simultaneously permit horizontal and vertical circulation of conditioned air. These double air channels give the block a superior thermal and acoustical insulating capacity, as a bed of moving air provides a better insulating quality than solid matter. The inventor claims that the gently curving horizontal channels and the separators, which are curved on top and flat on the bottom, provide more efficient diffusion and dispersion of air within the wall.

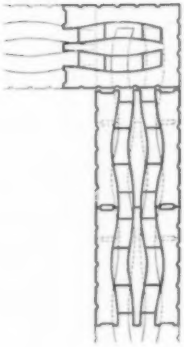
For outside walls, insulation may be placed in the exterior channels. Glass wool is Ferraro's first choice; however, he states that other and cheaper materials may be employed. The inventor further advises that the insulation can be placed in the blocks individually and without difficulty.

The continuity of the channels is not broken by the framework within the walls or by the angles formed by the corners, so that the circulation of conditioned air may proceed in one or more walls without interruption. Ferraro points out that the system of cooling would be the same as for heating; however, cool dry air must be introduced into the channels so that condensation will not be produced. The channels may be also used to carry water piping and electrical conduit.

The design of the block is protected by international patent; in this country, the representative for Climabrique is Richard H. Wels, 551 Fifth Avenue, New York 17, N. Y.



SECTION



PLAN

## laminated panel suitable for exterior and interior walls

A laminated building panel offering more insulation value than a 16" concrete wall has been developed by the Owens-Illinois Glass Company. Marketed under the name of Kaylo, this product is lightweight, has exceptional strength, and is suitable for both exterior and interior walls.

A typical panel is composed of a 1-⅝" core of calcium-silicate which is faced with ⅛" cement asbestos boards. It is resistant to moisture or fungus and will withstand an hour's exposure to fire. A standard size panel is 4' x 8', weighs only 200 lbs., and can be installed with ordinary tools.

The manufacturer recommends this product be employed for curtain walls or as non loadbearing sections. It requires no painting, furring, plastering, or other finishing; however, if desired, it can be decorated with alkaline resistant paints. Kaylo Division, Owens-Illinois Glass Company, Toledo 1, Ohio.

A bonderized steel cabinet is finished in a neutral gray tone. Over-all dimensions are: 45" high, 38" deep, and 34" wide.

## average five-room house air cooled for less than $1000

To fill the cooling requirements of any size dwelling, the York Corporation has recently announced a new line of six residential air conditioners. With York equipment, it is claimed that an average five-room home can be completely air cooled for less than $1000. The York conditioner can be installed in conjunction with any forced warm air heating system, as an independent central system, or in a series of individually located remote units. The cooler can be installed in any place where there is waste area: in the cellar, in the attic, in a closet, or even in the garage.

The cooler permits the use of regular heating air ducts and furnace fan without structural design changes or costly building alterations. The entire cooling circuit, compressor, condenser, refrigerant lines, and cooling coils are sealed at the factory, making the unit gas, air, and dirt tight. Should a failure ever occur, the entire cooling circuit can be quickly replaced with another factory sealed and tested unit.

In the model illustrated, two completely hermetically sealed refrigerating circuits are mounted in a rigid steel frame. The damper is easily positioned to by-pass the cooling coil when the furnace is in operation.

A capillary tube refrigerant feed plus step starting relay control minimize starting current requirements. The water-cooled condenser is of shell and integral fin tube design; in addition to possessing an automatic regulating valve to conserve water consumption, the condenser is easily adaptable for cooling tower application in areas where water is short.

Two 1 hp hermetic compressor motors are provided for 230 volt, single phase, 60 cycle application. York Corporation, York, Pennsylvania.

# this month's products

## air and temperature control

**Flow Cold Packaged Liquid Chiller:** water chilling unit utilizing existing duct-work or convector-radiators to provide summer cooling in any residence or small commercial building. No expensive refrigeration connections or excessive installation costs. May be used with any type of heating system, and can be located either in basement or in first floor utility room. Acme Industries, Inc., Jackson, Mich.

**Rex Airate:** 20" combination window and circulating fan. Two-speed operating switch, side expanders adjustable to fit windows 28" to 38" wide; close-meshed, protective grilles; 9' cord; life-time lubrication. Air Controls, Inc., 2310 Superior Ave., Cleveland 14, Ohio.

**Center-Trol:** panel control unit for air-conditioning installations where it is desirable to control heating, cooling, and ventilating from central point. Simplified installation wiring and maintenance, merely necessary to run wires from thermostats, solenoids, modulating controls, or holding coils directly to master terminal block inside unit. Available in single and double area units, or custom-engineered for special installation. Custom Electric Controller Co., 119 Cross St., Harrison, N. J.

**Explosion-Proof Wall Exhaustor:** unusual construction permits installation of entire unit on outside wall, away from possible explosive concentrations. Aluminum housing, nonferrous centrifugal impellers. Similar exhausters available for roof application. Jenn Air Products Co., 333 N. Pennsylvania St., Indianapolis, Ind.

**High Output Baseboard:** convector intended for new construction and modernization work, where greater output than that given by standard baseboard units is necessary, or when convection heating is desired. Baseboard, complete with fin coil assembly and louvered steel front cover, made in standard lengths up to 10', and may be ordered to fit any specification. Kritzer Radiant Coils, Inc., 2901 W. Lawrence Ave., Chicago 25, Ill.

**Attic Horizontal Forced Air Furnace:** all-purpose heating unit for all types of residential, commercial, and industrial buildings with or without basements; functions as attic furnace, suspended unit heater, forced air furnace, floor furnace, or central heating unit. Available in three models with input ratings of 65,000, 100,000, and 130,000 Btu. Palmer Mfg. Co., Phoenix, Ariz.

**Royal Mid-Jet:** inexpensive, easily installed wall heater in 25,000 and 45,000 Btu sizes, with low flue temperature. Seamless casing with non-reflecting fabric finish, rounded corners, non-vision registers hiding heating element and blocking vision between rooms. May be installed before or after plastering and painting; fits between standard 16" on center studs. Royal Heaters, Inc., Alhambra, Calif.

**Temco Conversion Burner:** for use with most furnace or boiler installations. Housing supports permit accurate leveling and placement on uneven floors. Factory assembled, equipped for fully automatic operation. Minimum rating of 65,000, maximum 200,000 Btu per hour. Temco, Inc., Nashville 9, Tenn.

**US-12 Boiler:** cast iron boiler, manufactured for steam or water, in four sizes and four models: oil boiler-burner unit; oil-fired boiler without burner; gas-fired boiler; coal-fired boiler. Claimed to be highly economical heating plant. U. S. Radiator Corp., 300 Buhl Bldg., Detroit 26, Mich.

## construction

**Carey Mastic:** heavily fibrated asphalt compound designed to reduce penetration of moisture and underground seepage through foundations and walls above and below grade. Also, **Carey Semi-Mastic:** semi-fibrated, similar material offering effective resistance to dampness penetration through porous masonry foundations and walls. Both products ready to use, may be applied with spraying equipment. Carey Mfg. Co., Lockland Station, Cincinnati 15, Ohio.

**Glas-Kraft:** strong, tough, nondeteriorating waterproof kraft paper reinforced with glass fiber. Many uses, including vapor barrier, side wall sheathing, protective floor covering, etc. Glas-Kraft, Inc., Lonsdale, R. I.

**Bendelox Abrasive Floor Aggregate:** improved, nonslip, longer wearing flooring material made of crushed blocks of ceramically bonded aluminum oxide, screened to standard sizes, blue-gray in color; will give positive footing even under oily, wet conditions. Metals Recovery Co., Ann Arbor, Mich.

**Stainless Steel Telephone Booths:** for interior and exterior installations in public buildings and industrial plants. Durable, chip-proof, scratch resistant surfaces easily cleaned. Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn, N. Y.

## doors and windows

**Tubular Latch and Lock Sets:** new line of front door, interior, and screen door hardware sets for residential use. New type of baked-on plastic coating over highly polished brass finish of all exterior parts; knobs secured with patented screws that minimize possibility of becoming loose. Harris, Inc., 200 E. Long St., Columbus 15, Ohio.

**"Flo-Dor" Trackless Unit:** provides free-floating action for recessed doors, without tracks or alignment problems. Specially constructed mechanism installed within wall supports door by means of brackets and arms, and provides silent, "feather-touch" door operation. Units available to fit all standard door sizes. Flo-Dor, Inc., 8831 Exposition Blvd., Culver City, Calif.

**Double-Hung Aluminum Window:** particularly adaptable to hospital and school planning. Unit features built-in hopper vent, designed so as to permit use of top-hung, full-length, double-sliding or half-vertical screens. Window carries overhead concealed clock spring balances with stainless steel tapes, counter-balanced for weight of glass. Custom-made to specified sizes up to maximum width of 5 ft., 10 ft. height. Sterling Windows, Inc., 369 Lexington Ave., New York, N. Y.

**Aluminum Basement Windows:** new line of basement and utility windows, each fitted with positive cam-action concealed locks, and prepared for flat outside screens. Units are bottom-hinged for tilt-in ventilation; glass may be cleaned from inside; entire ventilator section easily removed for glazing. Valley Metal Products Co., Plainwell, Mich.

## electrical equipment, lighting

**Stab-Lok:** low-cost air circuit breaker consisting only of two assembled parts, two springs and handle, enclosed in case. Unit-pole construction, thermal-magnetic overload. Two-pole, simultaneous trip breaker also available. Federal Electric Products Co., 50 Paris St., Newark 5, N. J.

**General Purpose Collector Ring:** inexpensive collector ring, made of plastic, furnished with 1, 2, 3, or 4 conductors, for slow speed operation to carry electric current up to 75 amp. at 220v. Many applications in industrial and entertainment fields, in which handling of lights, devices, and instruments require running contact. Industrial Electrical Works, Dept. 14 E, 1509 Chicago St., Omaha 2, Nebr.

**Sentry Automatic Earthquake or Explosion Operated Electric Switch:** safety device set into existing electrical system will instantly cut off pumps handling flammable materials, cut off machinery, sound alarm, and provide other safety measures. Will not prematurely close from normal factory vibrations. McCrae Valve Corp., 620 S. Main St., Los Angeles 14, Calif.

**Guarded Light:** lighting fixture, suitable for schools and other locations where breakage is hazard. Standard opal glass protected with cork gaskets and rustproofed steel grille. Open ends prevent accumulation of bugs and dirt. Uses 150w lamp, easily replaceable. Framework comes in bronze, brushed cadmium, verde antique, or old iron. Height 13", width 9", depth 5". Strickley & Co., 2404 W. Seventh St., Los Angeles 5, Calif.

**Magnalaire Incandescent Luminaire:** luminous, semi-direct lighting fixture. Totally enclosed globe type, applicable in hallways and other locations. High diffusion and transmission characteristics. Available in two sizes: 75/150w and 150/200w. Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa.

## interior furnishings

**Eames Chair:** now available in molded Zenaloy (plastic resin reinforced with Fiberglas) three bases (low wire strut base, rocker, and original four-legged stainless steel model), and in four colors: greige, elephant hide gray, light black, and parchment. Herman Miller Furniture Co., Zeeland, Mich.

## sanitation, water supply, drainage

**Criterion Lavatory:** bathroom lavatory constructed of solid slab vitreous china with smooth lines, rolled front to blend with modern tiling. Perfectly flat 30" x 22" top provides wide area around 16¼ x 12½" basin. Metal tube legs, faucet handles in clear fluted lucite. Exposed metal parts finished in brushed chrome. Available in nine colors, including white. Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

**Self-Priming Centrifugal Pumps:** unusual design eliminates all valves; positive self-priming; no large or bulky reservoir; no recirculation of water during pumping stage. Made in sizes from ¼ hp. to 5 hp., open and closed impellers. Goulds Pumps, Inc., Seneca Falls, N. Y.

**Submersible Pumps:** for domestic and industrial water supply systems. Compact units quickly and easily installed; pump merely suspended underwater by its own piping and special submarine cable connected to convenient source of electrical supply. Wide range of sizes from 5 gpm. to 1250 gpm. Sumo Pumps, Inc., 1 Atlantic St., Stamford, Conn.

**Hy-Duty Horizontal Circulator:** circulator for forced hot water heating systems. Exceptionally quiet in operation, equipped with porous bronze bearing, rotary seals, cast bronze balanced impeller with stainless steel shaft, two-bolt interchangeable flanges, and specially selected motors with overload protection. Also **Horizontal Flow Checks:** prevent hot boiler water from flowing to heating system when circulator is not running, thereby permitting boiler to be used for domestic hot water summer and winter. Taco Heaters, Inc., 137 South St., Providence 3, R. I.

## specialized equipment

**Lamp-Type Annunciator:** reasonably priced annunciator of reinforced bakelite construction, satin-finish aluminum frames, flexible in arrangement and circuiting, for use in hospitals, as well as in restaurants, lounges, and other surroundings. King Products Co., 1110 Euclid Ave., Cleveland, Ohio.

**Automatic Dishwasher:** unit designed to fit beside conventional cabinet sink. Dishes, cooking utensils, etc., thoroughly washed and given two hot rinses in 9¾ min. Booster heater assures full hot water supply for dish-washing cycle. Tub is sound-deadened. Mullins Mfg. Corp., Warren, Ohio.

**Gas Kitchen Ranges:** three 36"-high models, each with "banquet-size" oven, automatic oven heat control, blue speckled porcelain-enameled oven lining, and automatic top burner lighters. Cabinet finished in white, acid-resistant titanium porcelain enamel. Engineered for use with natural, manufactured, or L.P. gas. Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio.

## surfacing materials

**Pre-Bleached Veneers:** thoroughly bleached wood veneers, with all original pigments and minerals affecting colors permanently removed, preventing any possibility of original wood colors ever bleeding through; new bleaching method provides smooth, reliable surface with natural grain and life of wood retained. Veneers available in oak, walnut, mahogany, bird's eye and plain maple, and other hardwoods. Aetna Plywood & Veneer Co., 1750 N. Elston Ave., Dept. R, Chicago 22, Ill.

p/a

# MANUFACTURERS' LITERATURE

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

## AIR AND TEMPERATURE CONTROL

**1-46. Airtherm,** AIA 30-C-43 (802), 18-p. illus. bulletin on direct-fired heaters, using gas or oil, in horizontal and inverted suspension models. Advantages, typical installations, dimensions, controls, accessories, capacity tables, diagrams, specifications. Airtherm Mfg. Co.

**1-47. Packaged Air Conditioners** (PM 79-0100), 12-p. catalog covering line of residential and commercial air-conditioning units. Descriptions, cutaway drawings, A.S.R.E. standard ratings, dimensions, typical floor plans. General Electric Co.

**1-48. Registers and Grilles,** AIA 30 J (50), 36-p. catalog containing data on selection tables, weights, open areas, sizes, and prices of complete line of grilles, cold air faces, and registers. Illustrations, contents table. Independent Register Co.

**1-49. Climatrol,** AIA 30B1, 8-p. illus. booklet describing various types of gas, oil, and coal fired furnaces, winter air conditioners, conversion burners, and summer air conditioners. Data on each model, ratings, cabinet dimensions. L. J. Mueller Furnace Co.

**1-50. 37 Points of Engineering and Functional Superiority** (3292), 8-p. booklet pointing out advantages of unit ventilators, automatically controlled to maintain constant heating level and recirculate room air noiselessly, without drafts. Herman Nelson Co.

**1-51. All-Year Air Conditioner** (OAC-79-O2R), 8-p. booklet describing complete air-conditioning unit, furnishing steam for heating requirements in winter, and operating refrigeration system in summer. Typical residential and commercial installations, operation performance data, dimensions. Servel, Inc.

★ **1-52. How to Have Comfort from Moving Air,** 136-p. book giving 14 broad classifications of heating, cooling, and ventilating equipment made by various manufacturers, including air circulators and purifiers, attic fans, central heating systems, evaporative air coolers, oil burners, room air conditioners, etc. Descriptions, illustrations, index. Torrington Mfg. Co.

Booklet describing ceiling-installed, electric radiant heat panels. Construction, operation, step-by-step installation photos, general information. Also, 40-p. booklet containing layout procedure for accurate determination of number of panels required to heat enclosure. U. S. Rubber Co.:

**1-53. Electrical Radiant Heat from the Ceiling** (W-49-4-A)

**1-54. Layout Procedure** (UK-2)

## CONSTRUCTION

**3-35. Stainless Steel Curtain Walls,** AIA 15-H-1 (SS19), 24-p. illus. booklet on new methods of curtain wall construction in which prefab sections of stainless steel sheathing backed by insulating material replace masonry or other materials in exterior wall construction of multi-story offices and other buildings. Scale drawings, details of facings, insulation, joints, vents, window sections, shapes; textures, discussion of building codes and tests. Allegheny Ludlum Steel Corp.

**3-36. Bitumuls Handbook** (A-10-B), 80-p. pocket-sized handbook covering all aspects of paving techniques using *Bitumuls* emulsified asphalt and other types of bituminous binders; further data on compounded asphalts for flooring and tennis courts, protective coatings, adhesives, and waterproofing. Paving methods and materials, specifications on road and airport paving, types of construction, tabular data, photos, index. American Bitumuls Co.

**3-37. Majestic Copper Flashing,** AIA 12H, 4-p. brochure describing 16 oz. copper flashing providing vertical, horizontal, and lateral bond between flashing and mortar. Advantages, typical details. C. G. Hussey & Co.

**3-38. Marble Forecast,** AIA 22-A, 8-p. illus. booklet listing types and availability of domestic marble. Tabulation of color ranges and classification of each variety as to soundness, listing of all Marble Institute members. Marble Institute of America, Inc.

**3-39. Architectural Porcelain Enamel,** AIA 15-H-2, 4-p. booklet describing uses, basic and special shapes, of porcelain enamel. General data. Porcelain Enamel Institute, Inc.

Booklet giving specifications for cement stucco, properties of concrete slabs, and cement paint, all three products made of air-entraining white portland cement. Typical drawings of concrete slabs. Other booklet illustrates terrazzo flooring, with 24 sample terrazzo color plates. Specifications. Universal Atlas Cement Co.:

**3-40. Atlas White Cements**

**3-41. Terrazzo**

## DOORS AND WINDOWS

**4-54. Better Light for Our Children,** 22-p. illus. booklet describing use of light-directing glass block combined with clear glass windows, in school classrooms. Health advantages, principles for application of glass block fenestration in new schools. American Structural Products Co.

**4-55. The Central Sash Balance,** 4-p. illus. bulletin on combination sash balance and weatherstripping unit. Advantages, installation features, size ranges, chart showing correct size spring for any window, diagrams. Central Metal Strip Co.

**4-56. Mosler 6-Hour Insulated Flat Sill Vault Door,** AIA 18-B (3600), 4-p. illus. booklet and instruction sheet for installation. Description of fire-resistive vault door requiring no grouting for installation and carrying "B" classification for burglary insurance rating. Specifications. Mosler Safe Co.

★ **4-57. Hardware Metals and Finishes** (Section CB), 52-p. illus. handbook containing resume of all metals and finishes used in builders' hardware. Properties, characteristics, metal finishing processes, specifications, other technical data, fold-up chart, 4 ft. in length, listing all regularly available hardware finishes of 71 leading manufacturers together with corresponding U. S. standard finishes now in force. National Contract Hardware Assn.

**4-58. Sterling Windows** (1950-A), 12-p. illus. catalog describing two series of double-hung aluminum windows for commercial buildings and institutions. Advantages, dimensions, specifications, details, elevations. Sterling Windows, Inc.

**4-59. Truscon Steel Building Products** (D-170), 16-p. booklet on residential and commercial steel windows of various types, surrounds, casings, steel doors, metal lath and accessories. Types and sizes, details, illustrations. Truscon Steel Co.

## ELECTRICAL EQUIPMENT, LIGHTING

**5-39. Specialty Lights** (UPL-2), 4-p. brochure illustrating specialized utility lights, such as night lights, pilot lights, pathfinder lights for hallways, bathrooms, etc., as well as for exterior locations. Types, uses, mounting information, diagrams. Cannon Electric Development Co.

**5-40. Planned Lighting for Modern Schools,** 12-p. booklet on fluorescent and incandescent lighting equipment for classrooms. Recommended levels of illumination, photos of typical arrangements. Pittsburgh Reflector Co.

**5-41. Eyestrain Zero,** 2-p. circular illustrating use of Plexiglas light diffusing panels with fluorescent lighting. Two typical installations, advantages. Rohm & Haas Co.

**5-42. Powerstat Light Dimming Equip-**

ment for Restaurants, Hotels, Cafes (11491), 8-p. illus. booklet. Types of dimmers, method of operation, standard ratings and specifications. Superior Electric Co.

### FINISHERS AND PROTECTORS

**6-13. Hillyard Sales Co.**, 4-p. folder describing finishes, seals, and treatments for commercial and industrial wood floors, old and new terrazzo, cement floors, composition floors, asphalt tile, linoleum, rubber tile, and bowling alleys. Specifications. Hillyard Sales Co.

**6-14. Interior Finishes**, color chart containing 38 chips illustrating complete line of wall paints available in flat, semi-gloss, and gloss. O'Brien Corp.

### INTERIOR FURNISHINGS

**9-30. Couturier**, 12-p. illus. brochure on custom-made nylon carpeting in which decorative patterns are woven in any desired arrangement to suit any room and floor plan. Typical examples, specifications. Nye-Wait Co., Inc.

**9-31. A New Approach to Seating**, 4-p. booklet containing folder and data sheets on line of classroom adjustable desks and chairs, constructed of wood and steel. Descriptions, dimensions, construction details. Peabody Seating Co.

### SANITATION, WATER SUPPLY, DRAINAGE

**19-62. Paracoil Converters**, AIA 34-i-3 (70), 12-p. illus. bulletin describing U-tube type converters designed for domestic, commercial, and industrial applications to supply hot water required for hot water radiation or process systems. Sizes, capacities, installation diagrams, specifications, engineering data. Davis Engineering Corp.

**19-63. Designed for Living**, 4-p. illus. booklet offering complete line of vitreous china and enameled cast iron bathroom fixtures and kitchen sinks. Color plates, suggested bathroom arrangements. Eljer Co.

**19-64. Use of Disposalls on Private Septic Tank Systems** (5-520), 8-p. booklet explaining method of using private sewage disposal system for dual job of handling household sewage and food-wastes from automatic electric garbage disposer. Design requirements, recommendations on capacity and location, data on soil absorption systems, seepage areas, and other factors. General Electric Co.

**19-65. Hotpoint Automatic Electric Dishwasher** (Y-51-CL), 6-p. illus. folder on automatic electric dishwasher with built-in dryer, enclosed in kitchen sink. Advantages, specifications. Hotpoint, Inc.

**19-66. Why Permutit?**, 32-p. illus. booklet on home water softener, consisting of single, plastic-lined tank filled with high-capacity bead resin as water softening element. Description, operation, performance data, advantages. Permutit Co.

**19-67. Centrifugal Pumps, Type UZD** (W-318-B21), 4-p. illus. bulletin illustrating two-stage, double suction centrifugal pumps for general water service, chemical industry, and other large capacity high head services. Cross-sectional drawings, selection chart, general data. Worthington Pump & Machinery Corp.

### SPECIALIZED EQUIPMENT

**19-68. Berger Scientific Supplies, Inc.**, 30-p. illus. catalog presenting complete line of drawing instruments, slide rules, T-squares, curves, triangles, scales, and other equipment for engineers, architects, and draftsmen. Brief descriptions. Berger Scientific Supplies, Inc.

Booklet on TV antenna distribution system designed to permit simultaneous operation of multiple television or FM receivers from one antenna. Descriptions of component parts, diagrams. Also, guide book giving circuit description and instructions for installation and operation. Diagrams, photos. Jerrold Electronics Corp.:

**19-69. Mul-TV Antenna System** (149)

**19-70. Jerrold Mul-TV System** (501)

**19-71. Wayne Rolling Gymstands** (Sections I, II), 8-p. illus. booklet and specification folder on fixed and movable rolling gym stands, with fully closed risers, which may be moved anywhere on same floor level. Design and construction details, various types of arrangements, photos. Wayne Iron Works.

### SURFACING MATERIALS

**19-72. Masonite Hardboards**, 24-p. illus. booklet. Use and application of several types of hardboard in building construction and remodeling. Physical properties, specifications for interior and exterior finishes, suggested joint treatments, drawings, photos, index. Masonite Corp.

**19-73. Stonhard Resurfacer** (P.L. 2500), 4-p. pamphlet illustrating advantages of compound material for industrial floor repair and maintenance, forming tough, resilient, nonskid surface for heavy trucking loads and traffic. Uses, application. Stonhard Co.

### TRAFFIC

**20-2. Peelle Motorstairs**, AIA 33-E-1 (PM-500), folder describing budget-priced moving stairway for small and medium-sized stores. Descriptions and photos of parts, cross-sectional drawing, architectural planning data, advantages. Peelle Co.

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| 4-54 | 4-55 | 4-56 | 4-57 | 4-58 | 4-59 | 5-39 | 5-40 |
| 5-41 | 5-42 | 6-13 | 6-14 | 9-30 | 9-31 | 19-62 | 19-63 |
| 19-64 | 19-65 | 19-66 | 19-67 | 19-68 | 19-69 | 19-70 | 19-71 |
| 19-72 | 19-73 | 20-2 | | | | | |

Name

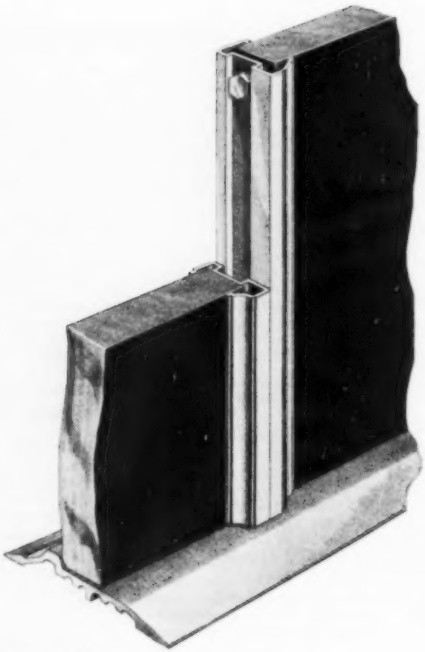
Position

Firm

Mailing Address ☐ Home ☐ Business

City State

**PLEASE PRINT** 9/50



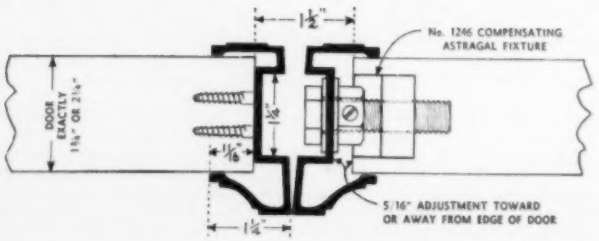
# KEEP EXIT DOORS HAPPY WITH Von Duprin COMPENSATING ASTRAGALS

As you know, the completely satisfactory operation of double doors equipped with two vertical rod panic devices depends upon having the correct type of astragals, properly adjusted. Von Duprin Compensating Metal Astragals provide for proper adjustment over the entire life of the doors . . . save money, time and trouble. They bring you five distinct benefits:

1. *Allow for easy adjustment to relieve door interference or reduce clearance space.*
2. *Establish, architecturally and mechanically, correct meeting stile details.*
3. *Permit independent operation of each door.*
4. *Provide correct bevel—⅛" in 2".*
5. *Eliminate gap between doors by projecting the meeting stile edges to the point where arc travel of each door meets.*

Made of extruded Architectural Bronze or Architectural Aluminum, Von Duprin Compensating Astragals add to the appearance of either metal or wood doors.

**VON DUPRIN DIVISION**
**VONNEGUT HARDWARE CO., INDIANAPOLIS 9, INDIANA**




Von Duprin PANIC DEVICES ASSURE SAFE EXIT

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# Plastic-Asbestos Flexachrome

Flooring specifications for hospital x-ray rooms were extremely troublesome . . . until Flexachrome* provided a simple solution to this complex problem. Its unusual versatility makes Flexachrome suitable for many other flooring needs, too.

Because it's truly *greaseproof*, you can use Flexachrome in kitchens, dining areas, compounding rooms . . . anywhere grease creates a problem.

Cost-per-square-foot-per-year is a surprisingly low figure. One reason for this is quick, easy installation. (The unusual flexibility of the tile allows a firm, fast, permanent bond to the sub-floor.) Another is Flexachrome's extraordinary durability. A third is simple, economical maintenance. Flexachrome retains its brilliant beauty under most rigorous service merely with daily sweeping to remove loose dirt, periodic washing and water-waxing (if desired).

And what scope you have in design! The individual tiles can be laid in an almost endless variety of patterns. Functional designs influence traffic, identify departments, enhance safety. Decorative motifs add striking individual beauty to interiors. Custom-cut inserts create truly unique floors.

Flexachrome is unsurpassed for color, too. 33 rich, vivid colors enable you to carry out any decorative mood you wish... gay and bright, or dignified and subdued.

You'll want complete information on Flexachrome, it's yours for the asking. Write us: THE TILE-TEX DIVISION, The Flintkote Company, Dept. H, 1234 McKinley St., Chicago Heights, Ill.

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PLASTIC-ASBESTOS
FLOORS AND WALLS

*Other Tile-Tex Flooring Products include: Mura-Tex* Plastic-Asbestos Wall Tile; Tuff-Tex* Heavy Duty Greaseproof Industrial Tile; Tile-Tex*. . . the Quality Asphalt Tile.*

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MARK OF MERIT PRODUCTS

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Commercial
Projected
**STEEL WINDOWS**

from *any* elevation

*Truscon Commercial Projected Windows in Manning, Maxwell & Moore, Inc., Watertown, Mass. Stone & Webster, Engineers. H. M. Worthington Co., Quincy, Mass., Contractors.*

*Truscon Commercial Projected Windows in St. Francis Academy, Pittsburgh, Pa. A. Pyzdrowski, Architect and Builder. Truscon "O-T" Steel Joists also used in this structure.*

*Another view of the Truscon Commercial Projected Steel Windows in Manning, Maxwell & Moore, Inc. Truscon Pivoted Steel Windows and Reinforcing Bars also used in this structure.*

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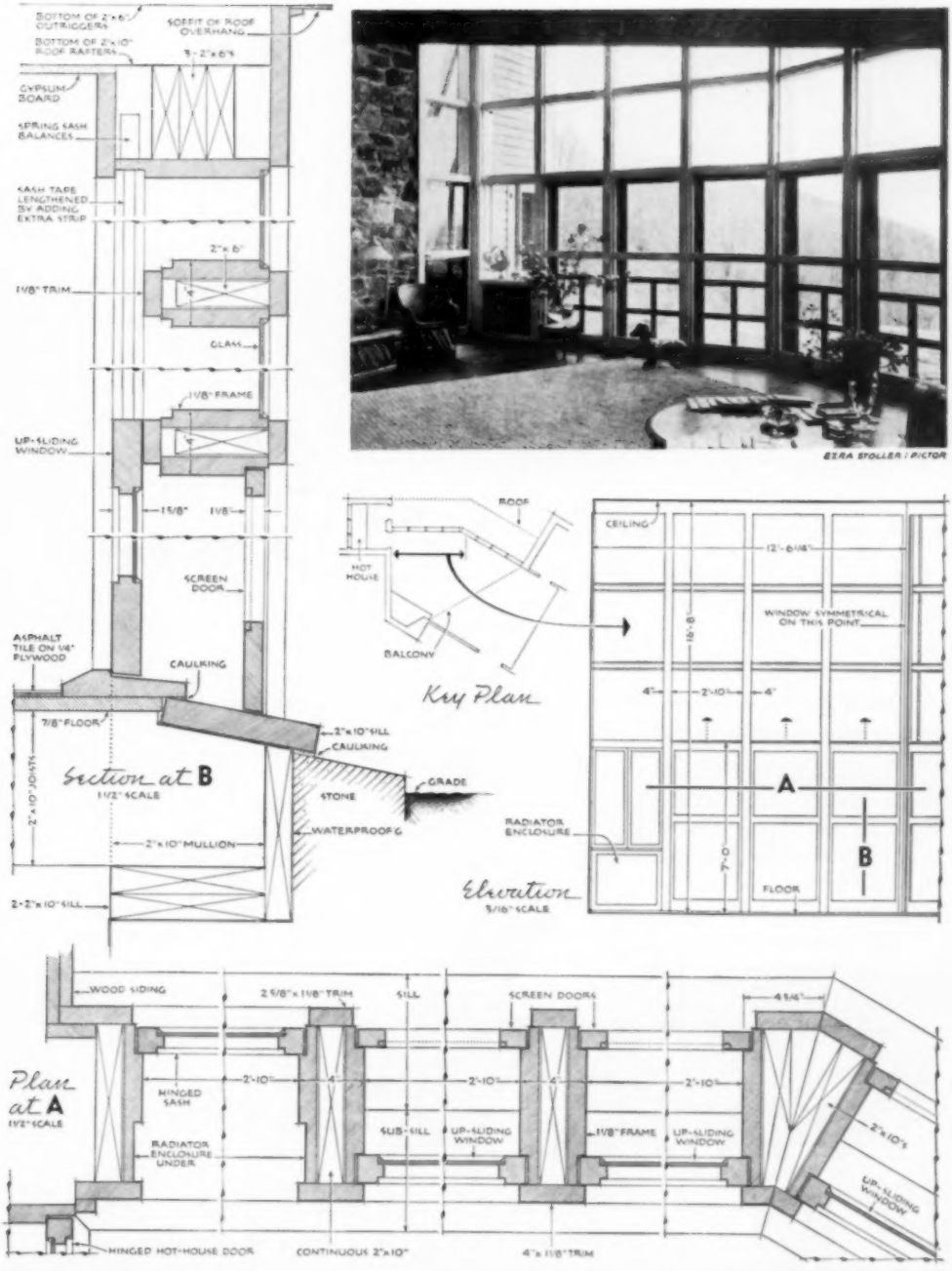


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**CALEB HORNBOSTEL, ARCHITECT**

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*One* phone call or letter to your U.S.G. representative will bring you full information about *three* types of roof decks: poured-in-place gypsum, precast gypsum, or steel. A complete line of roof decks to cover any of your plans whether they call for a pitched, flat, or curved roof.

If you have a specific problem, a U.S.G. engineer will gladly go over it with you and offer a dependable recommendation—one that's impartial because United States Gypsum has all of these *three* types of decks.

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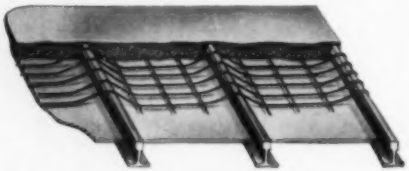
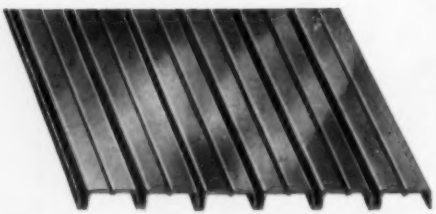


USG Steel Roof Deck



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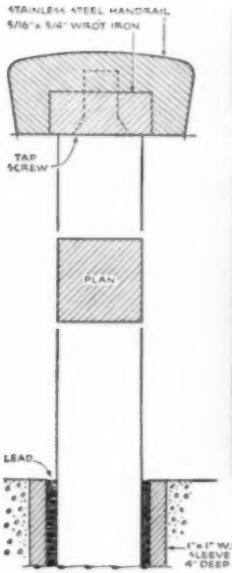
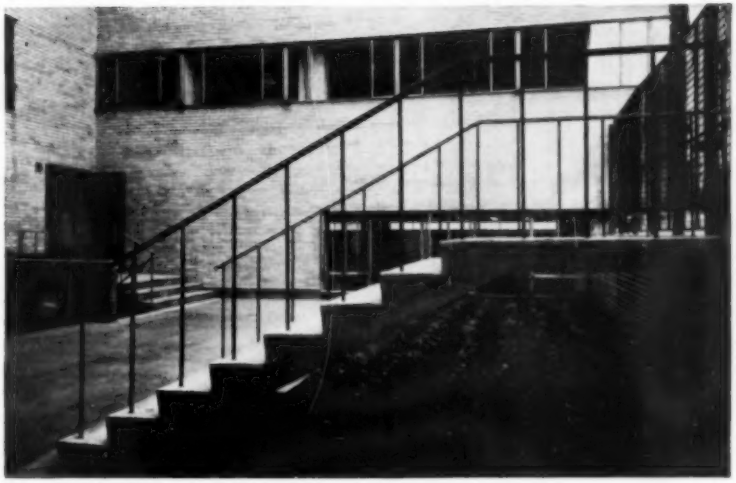
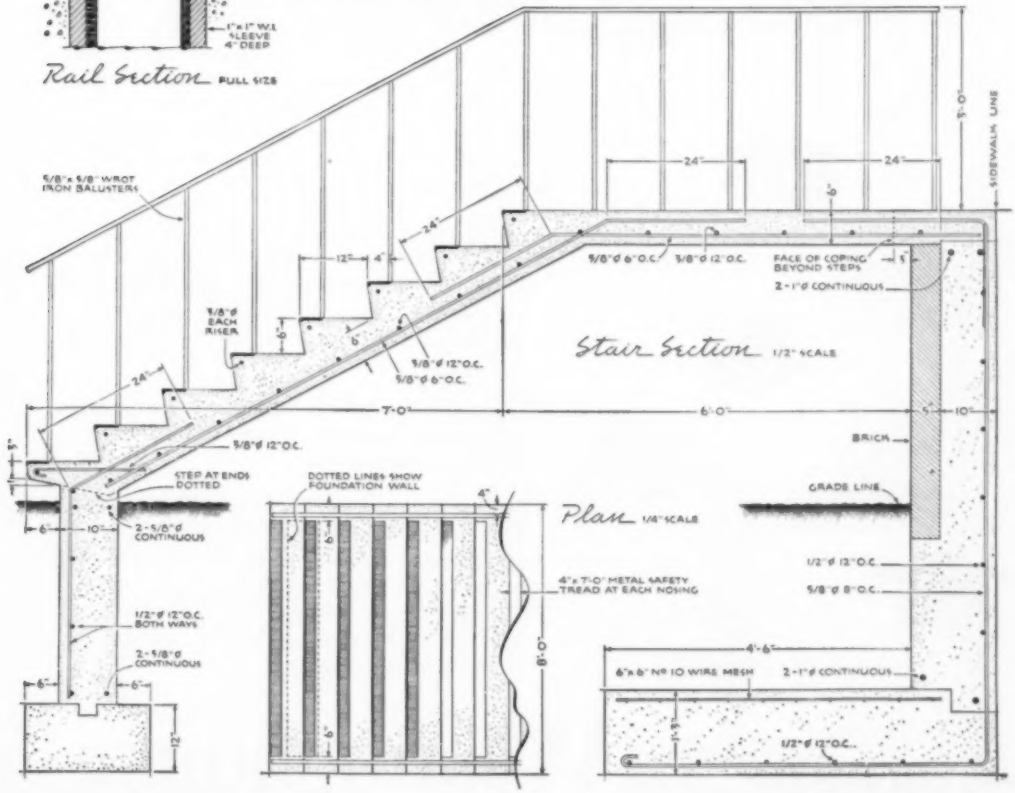



Rail Section FULL SIZE



LIONEL FREEDMAN + PICTOR

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**KETCHUM, GINA & SHARP, ARCHITECTS**

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Take a typical office building during the "off peak" period. Tenants voices change from loud demands for down and gentle whispers for up... to a clamor for up and a polite inquiry for down... to a steady babble for equal service in both directions. Selectomatic has an instant and automatic answer for each request.

That's because Selectomatic is never confused by the number or type of calls. Its unique electrical brain calmly separates the "ups" from the "downs" and regulates the entire elevator bank to give the most efficient service possible—and it does it all instantly and automatically.

Unlike other systems, Selectomatic doesn't depend on a starter's hunch for when to send which cars where. With Westinghouse Selectomatic automatically matching service to demand, the starter can concentrate on his most important job... directing traffic.

***Selectomatic, an exclusive Westinghouse development, completely supersedes the previous accepted elevator standard . . . signal control.**

See and hear the complete story of Westinghouse Selectomatic. Write on your letterhead and we'll gladly arrange a showing, at no cost, of our sound motion picture "Speeding Vertical Transportation With Selectomatic Elevators." Elevator Division, Dept. E-1, Westinghouse Electric Corporation, Jersey City, New Jersey.

**YOU CAN BE SURE... IF IT'S Westinghouse**

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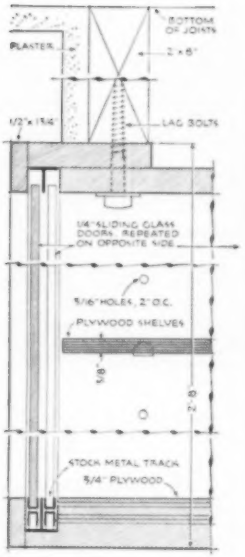
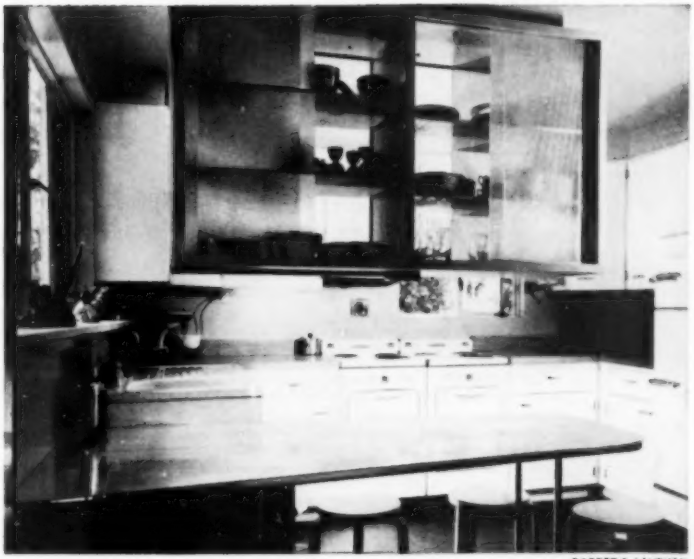
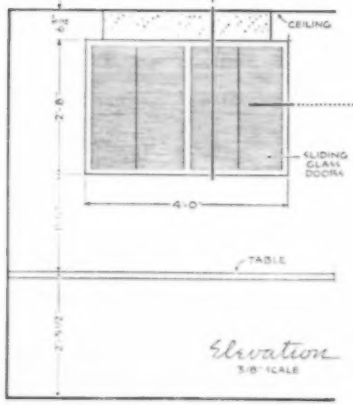


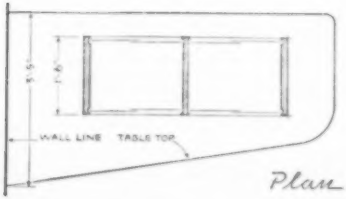

Section
3" SCALE



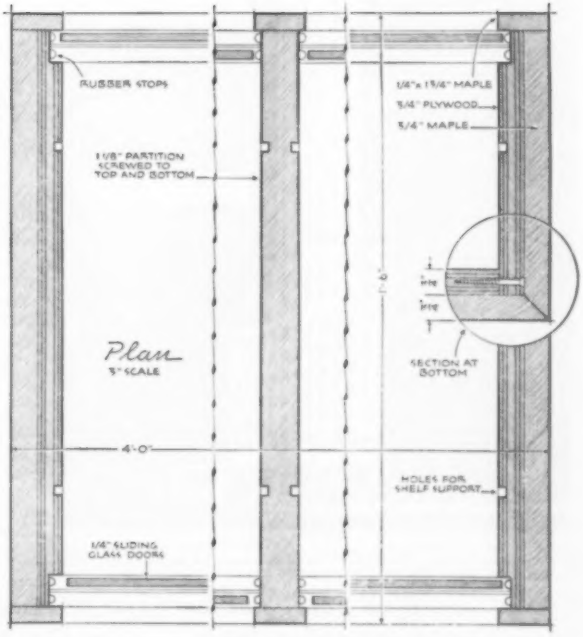
ROBERT C. LAUTMAN




Elevation
3/8" SCALE




Plan




**DORT RESIDENCE, Washington, D. C.**

**J. P. TROUGHAUD, DESIGNER**

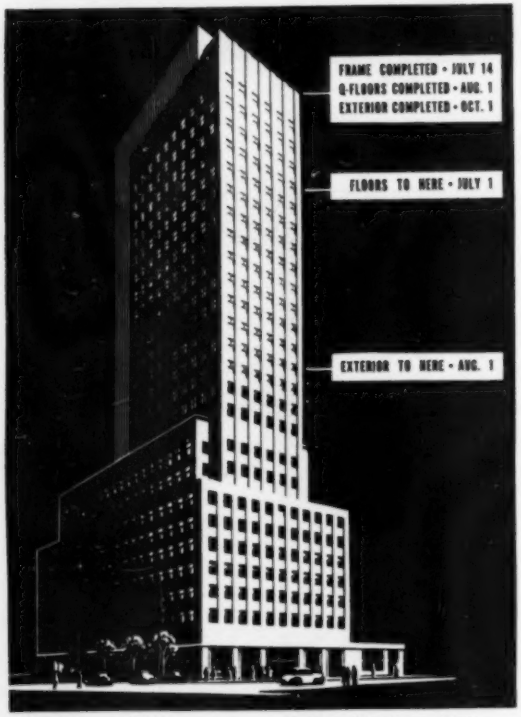
# Story behind the story

## in June 12th **LIFE** magazine

LIFE's story on the fast construction schedule being maintained at the Massachusetts Mutual Company's skyscraper home in New York City indicates that a new record in construction speed is likely to be set if the present pace is maintained.

LIFE's article does not attempt to explain the factors that are making this speed story possible. But they boil down to simply this:

1. Excellent job organization and co-operation among the sub-contractors; the contractor, Turner Construction Company; the steel fabricator, Bethlehem Steel Company; and the architects, Carson and Lundin.
2. The use of Robertson Q-Floor construction.




600 Fifth Avenue Building
Owner—Massachusetts Mutual Life Insurance Co., Radio City, New York

*Carson and Lundin—architects*
*Turner Construction Co.—contractor*

Q-Floors have long since proved their ability to reduce construction time 15 to 20%. This is because:

- They are cellular steel sub-floors. Light in weight but extremely strong.
- They arrive pre-cut, ready to lay in place.
- Two men can lay 32 sq. ft. in 30 seconds.
- They are welded to the frame.
- They form an immediate working platform. Other trades proceed full speed, regardless of freezing weather, not delayed by wet materials.
- Sub-contractors store their materials directly on the floors, reducing costly extra handling. Streets are kept uncluttered.
- Forms and shoring are reduced simply to the need of fireproofing.
- The floors can go in on the heels of the steel framework. Stairs go in right away; a distinct safety factor.
- Drafting room work is greatly simplified. Electrical outlets and partitions can be located *after* tenants move in. Elimination of pre-set inserts does away with the many revision drawings needed in old-fashioned construction.

This desire for construction speed is more than a publicity stunt. Every day of construction time saved can be counted in dollars saved by everyone concerned. Construction insurance and financing costs are reduced. The owner begins to capitalize on his investment sooner. That's why construction speed is desirable . . . it is money in the bank as well as a building in use.

Despite all this, Q-Floor costs less than the carpet that covers it! Q-Floor does not cost more, when all the intangibles (which do not show up on a contractor's estimate) are taken into consideration. Q-Floor saves time . . . saves money.

That's the story behind the story in LIFE.

***Have You Read the latest Q-Floor Literature? Write***

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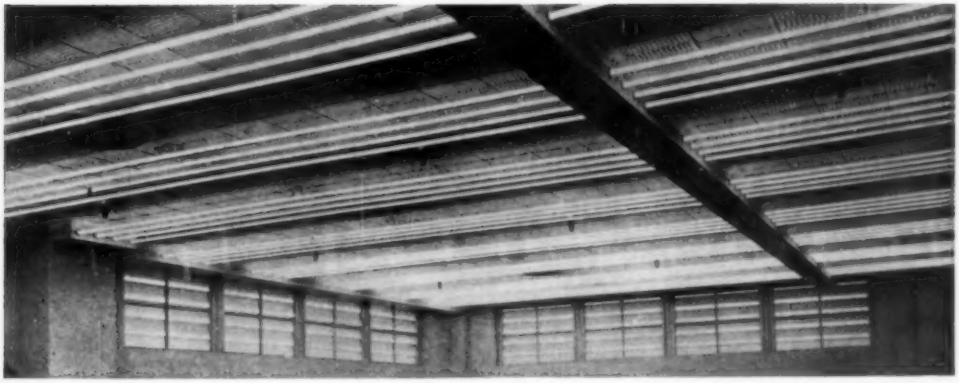

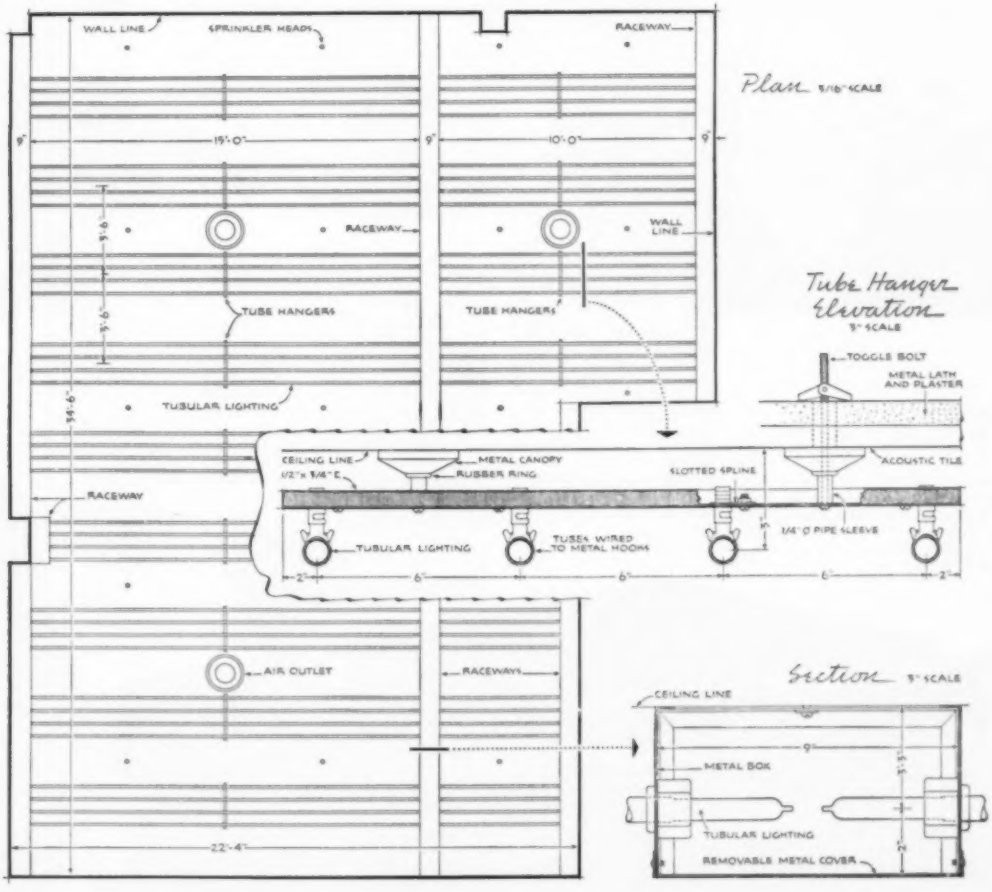


**ZEON ELECTRICAL PRODUCTS CORP., Los Angeles, Calif.** **THE AUSTIN COMPANY, ENGINEERS & BUILDERS**

# Representative applications of Glass in present-day design

**AN EXOTIC** setting for an architectural jewel! At San Juan, Puerto Rico, the new Caribe-Hilton Hotel is ideally situated to take advantage of nature's bounties. A beautiful conception, this hotel includes the most advanced features for the comfort and satisfaction of its guests. Pittsburgh Products were a natural choice to complement the luxury and splendor of this magnificent structure. Among these glass applications is its unusual front, glazed with Herculite Tempered Plate Glass. Carrara Structural Glass, Polished Plate Glass, Copper-Back Mirrors and Herculite Doors are among the other Pittsburgh Products used. The show windows of the shops on the main floor utilize more than 4500 square feet of clear Polished Plate Glass. Architecture and Structural Design: Toro, Ferrer & Torregrosa, San Juan, Puerto Rico.

**AN INGENIOUS** design highlights this "open vision" automobile sales room in Charleston, West Virginia. Pittsburgh Polished Plate Glass, with the top row set at a 30° angle, and a Pittsburgh Free-Standing Doorway, combine to make the entire interior a giant, attention-compelling and sales-stimulating display. This front is further evidence of the ability of Pittsburgh Products to assist architects in the creation of original and outstanding designs. Architects: Martens & Son, Charleston, West Virginia.

**THE TREND** in many ranch-type houses is toward a fixed window wall, with louver type ventilator. That's a feature which your clients will appreciate. For this construction, offered by Solar Air-Flo, Inc., Elkhart, Indiana, permits an unobstructed view through the Pittsburgh Twindow panels, with adequate ventilation and insulation. The louvered sections may be placed at top, bottom or sides of the Twindow panels, according to your design requirements.

**HERE'S** the construction of a Twindow unit, using two panes of Pittsburgh Polished Plate Glass. The hermetically-sealed air space between the panes provides effective insulation which minimizes downdrafts, cuts heat loss through windows, reduces condensation. Insulation is even more efficient when three or more panes are used. Forty-seven standard Twindow sizes are available, adaptable either for wood or steel sash.

**IN QUALITY**, permanence, beauty, Carrara Structural Glass is unsurpassed. You'll find it ideal for walls and wainscots of bathrooms and kitchens, as well as for window sills, fireplace surrounds, splash panels, built-in shelves. Carrara Glass is impervious to water, acids, chemicals, weather, pencil marks. It does not absorb odors, is easily cleaned with just a damp cloth. It is available in ten attractive colors. And it is readily decorated in various ways. Architect: Henry W. Johanson, Roslyn, N.Y.

## DESIGN IT BETTER WITH—*Pittsburgh Glass*

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**PITTSBURGH PLATE GLASS COMPANY**

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Terminal Building, Friendship International Airport.
Architect: Whitman-Requardt-Greiner Co. & Asso.
General Contractor: Consolidated Engineering Co.
Roofing Contractor: Lloyd E. Mitchell, Inc.

**Friendship International Airport at Baltimore, officially opened June 24th, is four times the size of La Guardia Airport in New York. Its $3,724,000 Terminal Building is the first to permit complete transfer from international to domestic transportation, or vice-versa, under one roof . . . a RUBEROID BUILT-UP ROOF.**

**In spite of many challenging problems presented in the design of this building, the choice of a roof was simple . . . a time-tested Ruberoid specification was selected by the architect, Whitman-Requardt-Greiner Co. & Asso., to provide the best in roof service and protection. Ruberoid materials and specifications have *proven* their *performance* for more than half a century.**

**Ruberoid is proud of its participation in the development of this super airport, a major terminal in worldwide commerce.**

## The RUBEROID Co. built-up roofings

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THE RIGHT ROOF FOR ANY JOB — FROM ONE SOURCE! Ruberoid makes every type of built-up roof—Smooth Surfaced Asbestos, Coal Tar Pitch with gravel or slag surfacing, and smooth or gravel-embedding perforated Asphalt . . . in specifications to meet any need. Ruberoid Approved Roofers are not prejudiced in favor of any one type. You are assured of centralized responsibility, smoother operation, uniform quality with Ruberoid built-up roofings.

# technical press

By JOHN RANNELLS

The Committee on the Hygiene of Housing of the American Public Health Association made a great contribution to planning and architecture two years ago with its *Planning the Neighborhood*. That book set down principles for healthy community planning on the basis of relationship of the home to the environment. Now the second volume in the series, *Planning the Home for Occupancy**, gives a close analysis of the space requirements of all the activities of family life. The third volume, *Construction and Equipment of the Home*, is scheduled for publication later this year.

The approach of the Committee is very simple . . . *that the home is primarily an instrument of health and that it is the duty of the public health profession to establish the fundamental health objectives which should govern the design of the dwelling.* This work has been going on since 1937. The Committee's first report, *Basic Principles of Healthful Housing, 1939*, outlined the goals which led to the present series and the development of *An Appraisal Method for Measuring the Quality of Housing, 1945*, which has become a standard accessory to planning and administrative procedures relating to existing housing, especially slum clearance. All these reports may be obtained from the American Public Health Association, 1790 Broadway, New York City.

The standards being proposed in *Planning the Home for Occupancy*, are not of the legal "minimum" variety. Rather, *they outline the human objectives which should be attained in the housing of the future—the standards of actual performance which are essential for health, safety and satisfaction, in the dwelling and its environment.* How far above present-day standards they are may be judged by the basic totals which the Committee considers essential to healthful housing in most localities:

| | | | |
|---|---|---|---|
| For one person .. | 400 | square | feet |
| " two persons.. | 750 | " | " |
| " three " .. | 1000 | " | " |
| " four " .. | 1150 | " | " |
| " five " .. | 1400 | " | " |
| " six " .. | 1550 | " | " |

These spaces approximate actual practice in house design for high-income groups and are about double the space furnished in a great deal of recent speculative building.

The great majority of houses built recently by private enterprise have been planned for the hypothetical average family of 3.4 persons. The actual range of family sizes is 45 percent for 3-person and 4-person families, 35 percent for 1-person and 2-person families and 20 percent for families of over four persons. The one-bedroom unit needed by the one- or two-person family is available only for high-income tenants in the large cities. The 3- and 4-bedroom units needed by large families are found chiefly in outmoded slum tenements. The needs of the actual population (as against the statistical average) just hasn't been met. When it comes to meeting space needs for liv-

(Continued on page 118)

ROMANY TILES
ARE REAL TILES
ROMANY TILES
IN SCHOOL CORRIDORS
There is an ever-growing demand for ROMANY, the real clay tile, for wainscoting and fully facing the walls of school corridors. The hard glaze finish makes this tile practically indestructible and exceptionally easy to keep clean. Many attractive non-fading colors. Wherever wall protection and decoration is deserving of the very best—write the name ROMANY in your tile specification. For full color samples of real tile:
Ask for Sample Chart No. 6
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CANTON 2, OHIO

* Planning the Home for Occupancy, *by the American Public Health Association Committee on the Hygiene of Housing. Published by Public Administration Service, 1313 E. Sixtieth St., Chicago 37, Ill. 1950. 53 pp., 47 tables, biblog.*

# technical press

(Continued from page 117)

ing, the shrinkage in size of houses has been startling. Dr. Winslow* in his foreword says, *I suspect that our grandfathers, if they saw much of the construction of the last few years, would find its gadgets a poor recompense for the space to turn around in.*

The question of adequate living space has become one of our most vital problems. It is not generally realized that it is tied-in with mental and emotional health. The average community has to provide almost as many hospital beds for mental and nervous diseases as for all other types together. About the same ratio holds for the minor emotional ills which handicap most families as against the nonhospitalized cases of diseases and minor injuries. *The frustration which results from overcrowding, conflict between the desires and needs of various members of the family, fatigue due to the performance of household duties under unfavorable conditions—these are health menaces quite as serious as (if less obvious than) poorly heated rooms or stairs without railings.*

The real meat of the report is its analysis of basic functional space needs. These are set up in terms of activities rather than rooms with some general principles indicated for relationships between areas but with the solution of the problems of arrangement left to the architect. The essential activities are: sleeping and dressing; personal cleanliness and sanitation; food preparation and preservation; serving of food and dining; family recreation and self-improvement; extra-familial association; housekeeping activities; care of infants or the sick; circulation between various areas of the dwelling; operation of utilities. Some of the activities, especially the storage space required by them, will overlap, but with due allowance for this the sum of all the activity spaces will be the total area to be worked into a plan.

Each activity is analyzed according to three components: 1) space necessary for the furniture and equipment, 2) adjacent space essential to performance of the activity itself (circulation between pieces of furniture, bedmaking, cooking, using the hand-basin, etc.), and 3) storage space for materials essential to the activity itself (whether closet, furniture, shelving, etc.).

These space analyses are set up in outline form plus discussion on arrangement for each activity, with dimensions of each item of equipment or furniture, space needed for use and circulation and for storage for different numbers of people in the household. Architects will study these outlines and the accompanying discussions with critical attention.

There is room for some minor quibbling with dimensions. It may be necessary to compromise with some of the recommended clearances or to allow for more activities in one part of the house than is recommended, even to leave out some activities altogether, but whatever we decide on the basis of this material will be decided with eyes open. It may be that considerable combination of activities would save enough circulation space to decrease materially total house size, but we are cautioned that it might be at the expense of housekeeping efficiency or of privacy—both important in the stress-free family life that these standards seek to encourage.

* *Dr. C.-E. A. Winslow, Chairman, Committee on the Hygiene of Housing.*

**Practical Application of Acoustic Principles**, by Dr. J. W. Cullum, was reviewed in TECHNICAL PRESS, March 1950 P/A, when the book was published by E. & F. N. Spon, Ltd., of London. It is now available in America through its new publishers, Macmillan Co., 60 Fifth Ave., New York, N. Y. at $3

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***Save up to 35% in deadweight... design up to 4,000 psi***

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p/a REVIEWS

## BOOKS

### TOURIST ACCOMMODATIONS

**How to Build and Operate Motor Courts and Highway Hotels.** *Ahrens Publishing Co., 71 Vanderbilt Avenue, New York 17, N. Y., 1950, 80 pp.*

This book is compiled of a series of how-to-do-it articles which originally appeared in "Hotel Management" magazine. The first article includes a check list to help both architects and hotel men in planning motor courts and highway hotels. Other articles consider the operation, financing, modernization, furnishing, and equipment of motor courts. The booklet includes descriptions of several outstanding motor court projects which are in operation at the present time; photographs and drawings of many other projects in widely scattered parts of the country are also reproduced in this useful compilation. W.W.A.

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### MACHINE FOR RETAILING

**The Specialty Shop.** *Jose A. Fernandez. Architectural Book Publishing Co., Inc., 112 W. 48 St., New York, N. Y. 304 pp., illus. $12.50*

Today's store had its inception in ancient times. It was an institution well known to the Syrians, Egyptians, Phoenicians, and Romans—and each played an important role in its early development. Along with civilization in general, it suffered greatly during the Dark Ages. The Industrial Revolution gave it new life and modern civilization has brought it to a high state of development.

In keeping with its title, *The Specialty Shop* is limited in scope to this particular type of retail venture. It tells in pictures the history of the development of the exterior and interior design of the structures housing these retail outlets. Great emphasis is placed on the need to consider carefully store functions, in the design of a retail plant and equipment. Some of the more interesting topic headings are: "Store Front," "The Sign," "Store Interior," "Staircases," "Lighting," "Color In The Store," "Display," "Floor Coverings," "Furnishings." The story is well told and exciting. This is a book that the merchant contemplating a new building cannot afford to miss.

The author is a well known architect in the field of store design. Fernandez is a member of the staff of the School of Architecture, Columbia University.

T. DART ELLSWORTH

### REPORT FROM DENMARK

**Contemporary Danish Architecture.** *Esbjorn Hiort. Jul Gjellerups Forlag. American distributors: Scandinavian Book Service, P. O. Box 99, Audubon Sta., New York 31, N. Y., 1949, 108 pp.*

Most of the 12 or 15 buildings shown in this interesting little book are quite pristine—and rather dull. But there are one or two examples which are worth studying at greater length and Hiort's accompanying text, which is in both Danish and English, is anything but dull. What the author does is to give a very brief account on the theme, "Here is where architecture stands in Denmark today." To implement the account he describes two churches, a library, some apartments, single-family dwellings, two or three public buildings, and, of all things, a crematory, which is one of the most interesting buildings in the book. W.W.A.

WHEN A STORE NEEDS

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# it's the law

By BERNARD TOMSON

An architect who prepares plans and specifications for a building in ignorance or disregard of the applicable building restrictions may seriously jeopardize his right to compensation for his services. The courts have held that an architect is bound to know the statutory rules and regulations governing the use and erection of buildings. He must further know the building restrictions applicable to the specific lot on which the building he is planning is to be erected, if he is informed of the location. Should his plans violate the building restrictions in either regard he will not be entitled to recover from the owner the value of his services, and may be liable for the owner's damages.*

A recent case should prove disturbing to those who are under the impression that the architect's responsibility or liability ends with the granting of a certificate of occupancy or its equivalent. A New York court confirmed the action of the municipality in revoking a certificate of occupancy some two years after it had been granted, after the premises had been used and after the owner had made investments in reliance upon the granting of the certificate. In part the court said:

"The petitioners although they could have done so, did not offer any proof at the hearings to show that the certificate of occupancy was lawfully applied for or that it was lawfully issued. They were content to rely solely upon the issuance of the certificate of occupancy as evidence of its validity. It is significant to observe that the petitioners did not know who actually filed Application No. 3453/1946 on their behalf. Both the petitioner . . . and his attorney disclaimed that they filed it. *The inference to be drawn from the attorney's statement is that petitioner's architect, . . . or someone in his behalf, filed it.* Petitioners did not offer any proof, however, as to the person who filed the application and as to its contents. The record also shows that it was the dishonest clerk who handled this application and made the entries in the docket book with respect thereto . . .

"Argument is also made by the petitioners that where an owner has acted in good faith upon the strength of a certificate of occupancy, he may not be deprived of the vested right of which he thus acquires. . . . Here, however, the certificate of occupancy was illegally issued and under such circumstances our courts have sustained the revocation of the permit or certificate of occupancy notwithstanding the fact that improvements or investments have been made on the strength of such illegal permit."

●

**It seems quite clear that should an architect participate knowingly in the illegal granting of a certificate or permit, he forfeits his right to compensation for services rendered and, in addition, is subject to an action for damages to reimburse the owner for his costs.**

**An architect has certain duties and makes certain implied representations**

**(Continued on page 124)**

* *Related subjects have been discussed in previous columns. Liability of an architect for negligence has been considered in relation to available types of professional liability insurance (January 1949, October 1949) and to an architect's liability for negligence in general (May 1949). Extent of municipality's right to restrict minimum area upon which a residence may be constructed was discussed in the column of May 1948. Racial restrictive covenants as affected by the Stuyvesant Town case were considered in the December 1948 and September 1949 issues.*

*The Pennsylvania Co., Phila. Columns, counter, rear walls in glowing Kalistron. Two Kalistron sheets—85 ft. and 60 ft. long cover entire counter front. Architect—Lewis Howell Shay. Contractor—John McShain, Inc.*

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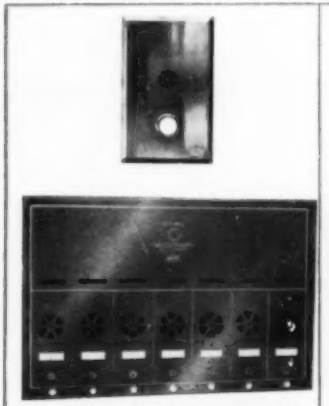

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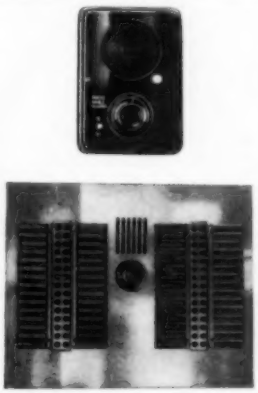

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SINCE 1892 AUTH

# it's the law

(Continued from page 122)

to those with whom he contracts to furnish architectural services. He implies that he possesses reasonable skill and ability; that he has an adequate knowledge of the science of constructing buildings; that he will exercise reasonable care, judgment, and technical skill to see that the work is properly done. Further than that, he implies that the work when completed will be suitable and capable of being used for the purpose for which it was prepared. This will mean, among other things, that he undertakes to plan a building which can be lawfully built on the site intended by the owner.

As one court has pointed out:

"An architect is an expert in his particular line of work. He so holds himself and is employed because he is such. He is not only bound to know the character of materials necessary to the construction of a safe and durable building of the design required, but is bound to know also the building restrictions imposed by the law of the place where he is informed the building is to be erected."

●

The facts and decision in one of the leading cases on this subject are instructive about the extent to which such responsibility for knowledge of construction law has been imposed on the architect. In that case, the owner of a vacant lot in Seattle proposed to improve the lot by erecting an apartment building on it. He pointed out to the architect a six-story apartment building on an adjoining lot and requested a similar building. Before the plans were completed, the owner decided to increase the size of the building and directed plans to be drawn for an eight-story building. Following completion of the new plans bids were taken which exceeded the estimated cost considerably. The owner then decided to abandon the project and refused to pay for the architect's services.

The owner's defense to a suit by the architect to recover for his services was that the plans were useless to him since they violated city building ordinances. The plans as submitted provided for a smaller court area for light and air than required by the ordinance and failed to provide the necessary space for yard room. It was determined at the trial that to satisfy the statutory requirements would require a re-drawing of the entire set of plans. The architect was held not entitled to compensation for his services since he had failed to furnish plans for a building which could lawfully be built on the site chosen.

Nor was the architect relieved of responsibility by the fact that the owner desired a building similar to the apartment house on the adjoining lot, which violated the ordinances to the same extent as the building planned by the architect. The court stated:

"The rule might be otherwise, had the defendant (owner) known the fact and directed plans to be drawn in accordance therewith in spite of such knowledge. But the evidence makes it clear that he had no such knowledge and that a mere inspection of the building and the ordinances would not disclose the fact to a person not skilled in building construction. On the other hand, the plaintiff did know it, or ought to have known of it, and it was negligence on his part not to so inform the defendant before entering upon the work of drawing the plans."

●

If the architect is employed generally to prepare plans and specifications for a building of a given style and dimensions and is not informed where it is to be erected he may recover for his services even though the owner cannot lawfully build it on the plot he chooses.

The court however, did permit the architect to recover for the initial plans drawn for the six-story building. The

(Continued on page 126)


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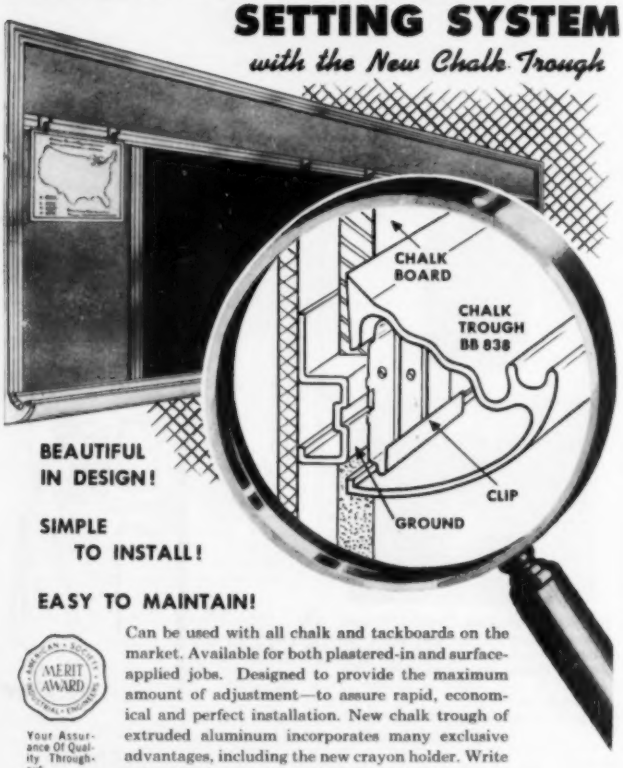


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Otis

**AUTOTRONIC**
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# it's the law

(Continued from page 124)

plans were incomplete at the time the defendant stopped work on them and it could not then be known with certainty whether they would have violated the ordinances or would have been otherwise defective when completed. Since the owner had stopped work on them, he could not escape payment for the work performed to that point.

This latter rule has been applied to other cases where work has been stopped on plans which in their incomplete state violate city or state laws. Where the architect agrees to revise the plans to conform to building restrictions, the owner is not justified in stopping work and refusing to pay the reasonable value of the services furnished up to that point.

In dealing with the cases involving plans violative of the building laws, courts have on occasion denied the architect recovery on the ground that his contract with the owner is unenforceable because it contemplates an unlawful end. In one case an architect was employed to draw plans for a motion picture theater. The building was to contain in addition to the theater several stores, dwellings, and a public bath house. The law relating to motion picture houses prohibited the use of any part of such building for dwelling or department store purposes and further imposed criminal penalties for its violation. The court held that a contract to plan and erect a building in violation of such law would be illegal and for that reason could not be enforced. In fixing responsibility, the court stated:

"All men are supposed to know the law, and further, one holding himself out as an architect is particularly charged with knowledge of the statutory regulations and restrictions governing the erection and use of buildings; therefore, we must assume both the plaintiffs and the defendants knew that the uses to which the latter contemplated putting the proposed structure were forbidden under a criminal penalty by the statutes of Pennsylvania."

●

To what extent will an architect be charged with knowledge of the law relating to construction? The broad generalization found in the cases appears to set no definable limit to the scope of his inquiry into construction law. However the facts in these cases present a more limited picture permitting certain conclusions to be drawn.

It is apparent that when an architect draws plans and specifications for a building such as a theater, he must comply with the laws governing its construction and must make his work conform with the requirements pertaining to light, air space, exits, yardage area, etc.

But there is a larger area of zoning law which the cases have not touched. If he must know that a building is required to be set back 10 feet from the street, must he also know that a building in a certain neighborhood can be erected only on a plot containing a minimum of two acres? If he must know that a hotel building is required to have rooms of a certain size for each occupant, must he also know that a particular section is zoned to exclude hotels or other commercial establishments? These questions have not yet been directly considered.

A New York case seems to indicate that for certain types of zoning law the responsibility for compliance is solely that of the owner. In that case, an architect had been employed to draw plans for a theater. After the plans had been approved by the Building Department, it appeared that the zoning restrictions did not permit the erection of a theater on the site chosen. The owner opposed payment for architectural services performed on the ground that the building could not lawfully be built and that the contract was, therefore, unenforceable. The court permitted recovery stating

(Continued on page 128)

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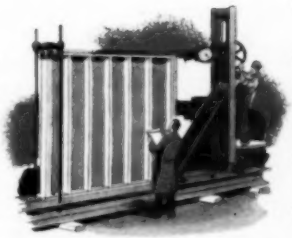

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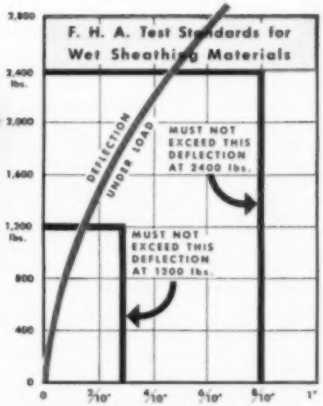
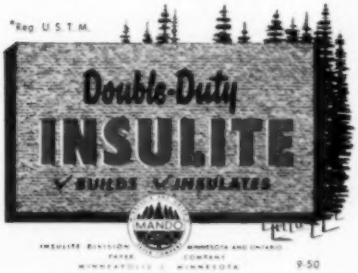



**Test Chart tells the story. BILDRITE far surpasses F.H.A. requirements.**

*Reg. U.S.T.M.




Racking tests in accordance with F. H. A. specifications were recently conducted by an independent laboratory using 4 ft. BILDRITE in 8'x8' panels of standard wall framing without corner bracing. F. H. A. required that the deflection of *wet* sheathing must not exceed 0.28 inch at 1200 lbs. pressure and 0.80 inch at 2400 lbs. pressure.

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Refer to Sweet's File, Architectural Section 10a/8

# it's the law

(Continued from page 126)

that the contract was not primarily illegal although it would have become so if completed. The court further said that completion was rendered impossible through circumstances which were particularly the fault of the owner. The duty of the architect to know the zoning law was not directly raised or considered, but it is significant that he was permitted to recover for plans which could not be used on the site which the owner contemplated.

The courts may at some future date be compelled to draw more specific conclusions. Whatever the outcome, the foregoing cases amply demonstrate the principle that an architect will be well advised to look into the law governing building restrictions, including zoning. It may also be advisable for the architect to require in his contract with the owner that the owner furnish him with a copy of the deed to the site on which construction is contemplated in order that the architect may check to ascertain if there are restrictive covenants of any kind upon the use of the property. Such precautionary measures will not only assure the architect that he will be paid for his services but also will save his client the cost of plans which he will be unable to use.

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## NOTICES

### AWARDS

The Juries of the 1950 Gold Medal Exhibition of the Architectural League of New York announce the following Awards covering the period from 1938 to 1950:

Architecture: Gold Medal to PHILIP L. GOODWIN, Architect, and EDWARD D. STONE, Associated, for the design of The Museum of Modern Art, New York City; and to SKIDMORE, OWINGS & MERRILL, Architects, for the design of the Great Lakes Naval Training Station Welfare Building. Silver Medal to PHILIP JOHNSON, Architect, for the design of the house of Philip Johnson, New Canaan, Conn., and to EDWARD D. STONE, Architect, for the design of the residence of A. Conger Goodyear. Honorable Mention to NEMENY AND GELLER, Architects, for the design of Al and Dick Restaurant, New York City.

Landscape Architecture: Gold Medal to ECKBO, ROYSTON AND WILLIAMS, Landscape Architects, Los Angeles, for the design of two gardens in Beverly Hills. Silver Medal to ETHELBERT FURLONG, Landscape Architect, for the design of Garden of 100 Stones, Japanese Style.

Design and Crafts in Native Industrial Arts: Gold Medal to DONELDA FAZAKAS for the design of silk screen printed textiles. Honorable Mention to JENS RISOM for furniture design.

Sculpture: Honorable Mention to HENRY KREIS—Sacrifice; WHEELER WILLIAMS—Venus and Manhattan; DONALD DE LUE—Family Group.

### NEW ADDRESSES

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MERRILL C. LEE, Architect, 601 E. Franklin St., Richmond 19, Va.

REUBEN FISHER, Architect, 1499 Bleury St., Montreal, P.Q., Canada.

CLIFFORD J. LANE, Architect and Engineer, Melba Bldg., Dallas, Texas.

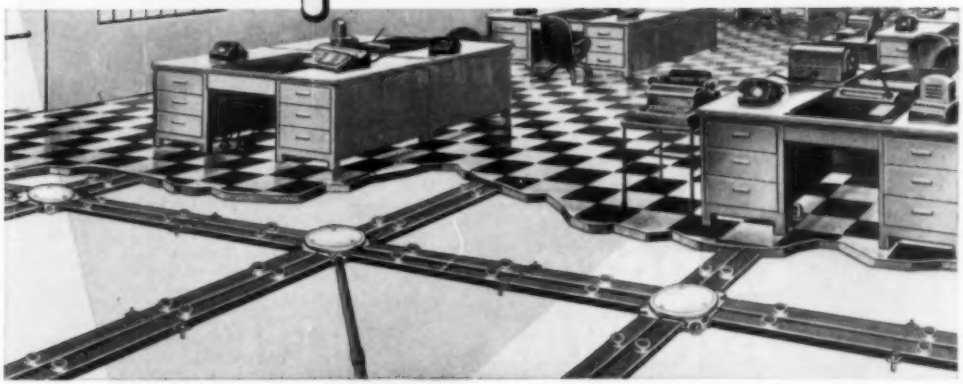
MERRILL C. LEE, Architect, 601 E. Franklin St., Richmond 19, Va.

MAYNARD LYNDON, Architect, 6030 Wilshire Blvd., Los Angeles, Calif.

ROY M. SCHOENBROD & ASSOCIATES, Architects and Engineers, 864 N. La Salle St., Chicago, Ill.

LESLIE M. DENNIS, Architect, 134 Elmora Ave., Elizabeth 3, N. J.

# Nepcoduct-



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# out of school

By CARL FEISS

*It would be a mere petty vanity, she felt, to say that the Big Bungalow lacked a woman's touch. So did the Taj Mahal, the Tower of London, and the Pyramids.*

Robert Standish's *Elephant Walk*

One year ago this issue I was writing my first OUT OF SCHOOL on the opposite side of the continent on another island in another sea. The first column was penned on hotel stationery at a little inn on Salt Spring Island, off the coast of British Columbia. In the distance, over the rocky, forested islands, rose white Mt. Baker and the glittering Canadian Rockies. Here on the North Carolina dunes, I can see, from where I sit, Roanoke Island across Albemarle Sound, the site of Fort Raleigh and the Lost Colony. Last year it was a few weeks of peace in the five-year interval between wars. Now the war planes add volume to the roar of the surf—disciples of fear to the background of over 360 years of history.

I have been wondering what Sir Walter Raleigh and Sir Richard Crenville would say—not to the threat of war with which they also had unlimited familiarity—but to this maudlin ribbon of architectural monstrosities, this lost summer colony that spatters the beaches. From Maine to Florida, from Florida to Brownsville, from San Diego to Seattle, stinking architectural flotsam and jetsam is cast upon our once beautiful shores. "Look away, Dixie Land." Darn tootin', folks, I'm looking out to sea, hoping for a hurricane to sweep the coast clean again, clean as it was in 1585, clean as it will never be again.

The more I think of it, the more I like Dean Burdell's question in July 1950 P/A (his guest column that is the subject of this issue) on the subject of licensing, "What right has the state to evaluate a candidate's design sense, his artistic and esthetic appreciation?" I'd say, in my present mood, and looking back for a moment on Dixie, that the state should insist on the highest possible design development in an architect, and not only that, should close any school which graduates an architect without sufficient design sense to get fighting mad at what he sees built around him. It should jail for life any architect who continues to build, or allows to be built in any community, structures that destroy the social and cultural value of his community. Malpractice in any business or profession is inexcusable, and the quacks who have built or are building are a detriment to the state and nation.

In my present frame of mind, my friends, I don't give a damn if North Carolina or any other state does license architects who can design only Williamsburg Colonial, or architects who design only with the "Good Housekeeping Stamp of Approval" of the Museum of Modern Art. I'm just urging Dr. Burdell's committee not to be afraid to insist that the state has the right and the obligation to require design apti-

(Continued on page 132)


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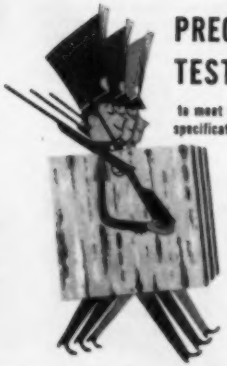

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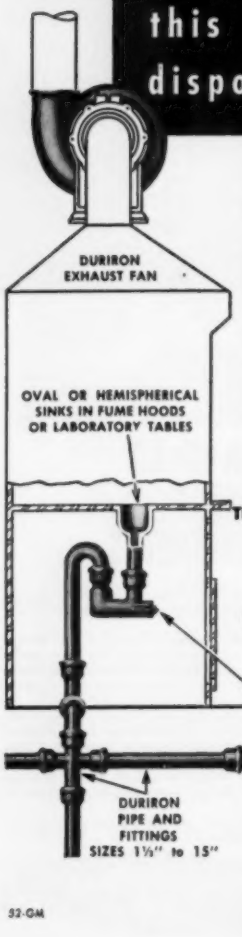
# out of school

(Continued from page 130)

tudes (among many others, of course) by any scale of values it chooses to light on. Any licensing program failing to include design, or failing to include esthetic appreciation, admits at once to the victory of American bad taste or materialism. Any elimination of design aptitudes as a requirement for a license would quickly destroy the teaching of design in the schools and, in turn, destroy the specialized reason for an architectural school. Those of you who are, among other things, designers and not primarily architectural gadgeteers, engineers, or statistical planners, I urge to write to the A.I.A. Commission to Survey Architectural Education and Registration, c/o Dr. Burdell at The Octagon and express your views. Or write me and I'll try and get your letter published here. Or both.


WHY CORROSION CAN'T DESTROY this laboratory waste disposal system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Let me brief for you, as a reminder, the five categories of investigation contemplated by Dr. Burdell's Commission. For those of you who did not read OUT OF SCHOOL for July the remainder of this article will have limited meaning, as I will not recapitulate. So better turn back.

The five categories are:

1. The nature and scope of architecture defined in terms of human needs, the building process and industry, and the nature of the architect himself.
2. The nature of architectural practice.
3. Licensing, examinations, and office training and experience.
4. The educational facilities serving the profession.
5. The role of the A.I.A. in professional education.

The Commission has outlined for itself a vast responsibility. You may remember that in May 1950 P/A we touched on a good many phases of the gaps in our knowledge of the training process. The Commission should be able to fill many of these. Since the final report of the Commission will not be available until December 1951, although some of the major findings may be available for the Chicago A.I.A. Convention next May, in a sense the commentaries of this column from now on will be tinged with anticipation and the hope that questions we have raised, or will raise, will be answered. What little authority we may have had may be vitiated by the findings of the Commission. I am willing, if you and the editors are, to take a chance. Certainly, until the report is finally in, we can only continue to speculate on its findings. I am therefore planning to continue in the role of inquirer and occasional gadfly in the body of architectural and planning education, looking forward most hopefully to the time when there is fresh meat available into which to sink my proboscis. There is, in the meantime, plenty of tasty stuff to nip into.

●

Before further commentary on Dr. Burdell's paper, I should mention that in Britain Dr. Nicholaus Pevsner sent out detailed questionnaires on architectural education to 9 countries and to 24 schools in 14 countries. His investigation, while on a personal and smaller scale than the A.I.A. Commission's, warrants study. You will find his report, "The Training of Architects: Interim Survey," in June 1950 *The Architectural Review*. I would like to call your attention in particular to the long quotation from Steen Eiler Rasmussen of Denmark. He mentions the building responsibilities of the Danish architect. Some of you may remember my comments in the June OUT OF SCHOOL. The Pevsner survey, while only interim (and I do not know what is next contemplated), points up the ad-

(Continued on page 134)

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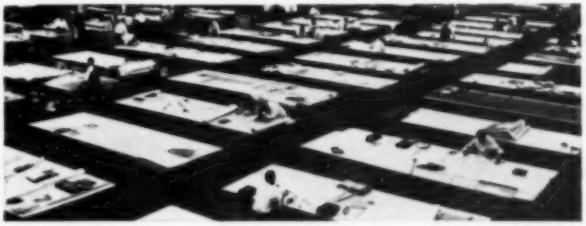

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# out of school

(Continued from page 132)

mitted and well known deficiencies of the questionnaire system of educational investigation. The A.I.A. Commission, *faute de mieux*, is using the questionnaire system and perhaps the size of the sample will overcome the inconclusiveness of the British interim survey. You will find the Pevsner article most worthwhile, even so.

I have not yet seen the precoded questionnaires which will arrive at your offices at about the same time at this issue of P/A. Andrew Fraser knows his job and I urge you to answer the questions with care. There is a world of information needed and your contribution is essential. It is safe to say that the work of the Commission will not be repeated for many years, whether or not it is successful in coming up with the answers we need.

Dr. Burdell's first important question in his June paper is the sociological problem of extending the period of professional training from four to six or eight years, or longer as the case may be if internship is contemplated. This raises a problem dear to his heart and one on which he has dwelt in other discussions. His contribution here can prove invaluable to the final report of the Commission. It may interest some of you to know that a curriculum committee at one architectural school is carefully considering an eight-year program—four years undergraduate academic work of a general, non professional nature; three years towards a Master in Architecture, and at least one year towards a Ph.D. There is still considerable doubt in this committee's mind that three years is enough for an undergraduate course at the graduate level, if you get what I mean. One of the committee members said to me, "We consider that the high scholastic tradition of this university is such that even if it takes 10 years to get an architectural degree it will be a good thing. If a student cannot afford to spend so much time to receive a superior training, then he should go somewhere else." This is perhaps a unique point of view and indicates the financial independence, if not the self assurance, of this particular institution. It cannot be, and certainly should not be, a universal attitude. If it were, the boy or girl with ambition to move quickly, the student with a family, or a dependent student, would find it difficult ever to get a degree.

While the problem of the extension of the period of adolescence is a serious one in America, it is part of a worldwide trend. The Black Prince, son of Edward III, led the British troops at the Battle of Crecy at the age of 16. Most boys are sexually mature at this age. As Dr. Burdell says, "The G.I. solved this problem by getting married." When I went to college in 1925 a boy would have been expelled for getting married. Marriage and settling down into some normal family routine was seldom possible for an architectural student until some 10 years after puberty. While today we would hesitate to let a high school junior lead an army into battle, we are somewhat less hesitant than we were 10 years ago to let a college freshman assume family responsibilities.

My own experience with married students leads me to believe that a great step forward was made with the G.I. Bill of Rights and that, on the whole, the married man accepts his educational responsibilities with greater maturity and less Rah! Rah! college stuff. Family problems are very great during the college years and at Denver University we found it profitable to encourage a student wives' organization

(Continued on page 136)

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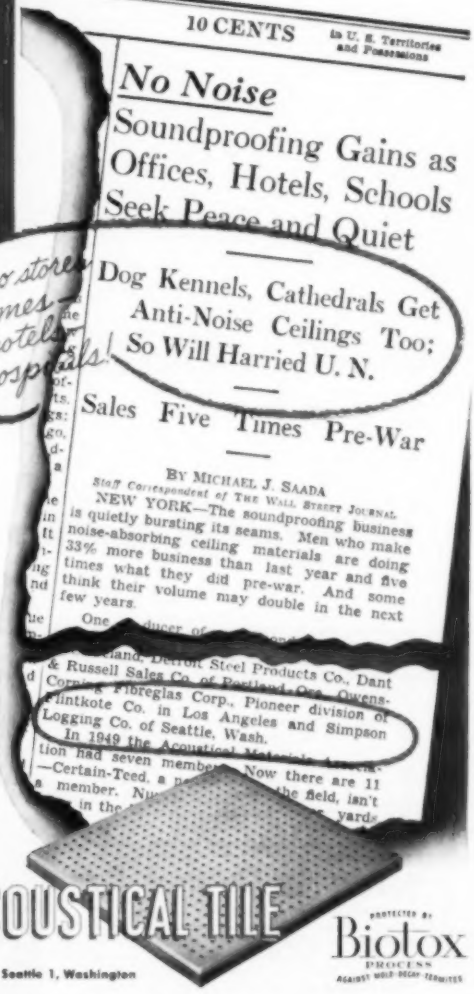
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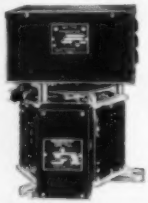

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# out of school

(Continued from page 134)

and to give the girls evening lectures on architecture and city planning, while the husband did both his home work and baby sitting. There is much study needed of the advantages and disadvantages of marriage in the college years under the complicated structure of our economic and social system. I am personally tired of the constant threat of the "old grad" who looks back on his college days as the age of play and whoopee and who wants the university to return to a normalcy which was anything but physiologically normal or conducive to sound and mature psychological growth of adult educational development.

•

Marriage in college requires additional student income. Either the wife finds work, or the student, or both. If there are children and the wife works part time, help is needed for periods of pregnancy and child care. The whole college institution needs to be geared-up to the social and placement responsibilities engendered by this change. Dr. Burdell, I know, will insist on a close study of this part of the whole time element which the A.I.A. Commission will investigate. The duration of professional training is inseparable from this intimate problem of the individual student.

I am convinced, again, from our experiments at Denver University that actual office and building experience can be successfully interwoven with scholastic professional training. The needs of a married student to add to his income often requires a part-time job. Placement service is therefore requisite and even more, a careful scheduling of classes and design problems to make possible daily consecutive free hours for employment. By accepting the student as a mature man, even when just out of high school (and that in itself is revolutionary to many school men), you increase his rate of productivity. Helping him to find a part-time job commensurate with his abilities and in line with his growing interests increases his self-confidence, his rate of intellectual growth, and above all, cuts his period of institutional dependency.

The new school year is about to begin. With further military training in the offing, and a possible rebirth of the G.I. Bill of Rights, every faculty meeting this coming year should devote time to discussing experiences under the old Bill and to the anticipation of, as much as possible, its renewal with a fuller understanding of the implications. You will not be able to wait for the A.I.A.

(Continued on page 138)

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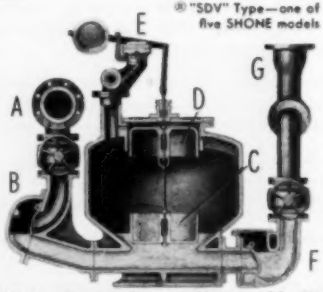


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# out of school

(Continued from page 136)

Commission's report. Incidentally, I am sure that the Commission would welcome your point of view, either as a faculty member, or a student, as a parent, or as an employer, if you have had contact with the first Bill. There has been a revolution in education. It is worth more than passing notice.

•

You may be wondering at my stress on these matters here. The A.I.A. Commission is devoting much of its effort to a study of educational timing. I do *not* believe an extension of college and university training to eight years is either necessary or wise, and I do believe, on the basis of some experience and study, that a dovetailing of time and activity, the careful use of working hours, and the acceptance of the manhood rather than the boyhood in the student, could go a long way towards solving the problem. I'd like to lay a bet that the Commission comes up with a similar finding.

I hope that the A.I.A. Commission will study the experience of the European "Gymnasia." I have found that the continental student of 18 or 19, who has studied with me and has come out of that system, is at least two years ahead of our boys in his ability to study. It may very well be that, willy-nilly, we will be forced to an intermediate year at the high high school or low college level to make up for the poor high school training so many of our students have received. A "make-up" year should not be necessary but reading, study, and speech blocks are now so common or more readily recognized that we are compelled to take into account a wasted year at a period of a young man's greatest ability to absorb and create. This again, I hope, will come under the eagle eye of the Commission.

•

One word here about the Commission itself. Meaning nothing derogatory, it is a middle-of-the-road group, neither old line conservative nor representing the special interests of the "intellectual moderns." We have no radical departures in architectural and planning education at this time. Under Dr. Burdell's leadership (and as a former student of his at M.I.T., I have very real confidence in him), we can expect a broad social understanding of the architect's role in society and an independent judgment of the institutions needed to train the man to fit the role. Even more, I think we can expect from the Commis-

(Continued on page 142)

# These Floors Put a Ceiling on Overhead!

Photographs taken at Sky Line Inn, Manchester, Vt.

MADE OF VINYLITE Brand Plastics, these inviting, colorful floors—the bar stool upholstery, too—will withstand years and years of hard service! This is because soaps, cleaners, grease, oil, alcohol, alkalies, and most strong acids have little or no effect on them.

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- **Can be safely laid on concrete floors in direct contact with the ground.**
- **Display greater luster when waxed than any other resilient floor covering, yet wax is not necessary because the surface is non-porous and dirt does not penetrate.**
- **Come in a limitless range of stable colors.**
- **Can be inlaid with decorative designs.**

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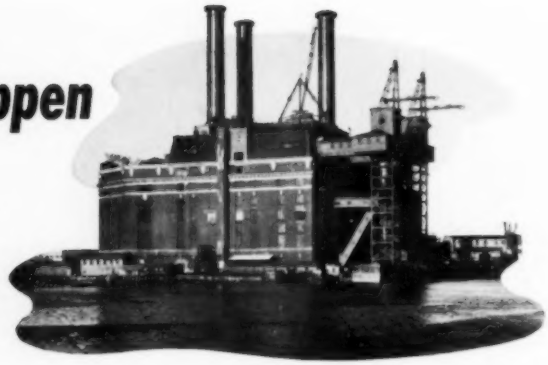
BAKELITE DIVISION, *Union Carbide and Carbon Corporation*, 30 East 42nd Street, New York 17, N. Y.

# How much can happen to a roof... in 37 years?



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**Yet—in 37 years**—all these destructive forces have had little effect on the MONEL® used at this plant. Installed in 1913, the Monel roof surfaces, coal hoist siding, downspouts, flashings and skylight frames are still in good condition.

**This trouble-free record is no surprise** to men who know metals. They'll tell you Monel has *corrosion fatigue resistance*. And that's what makes it practically a "life-of-the-building" material.

**Just look** at the properties of this ⅔-nickel, ⅓-copper alloy! It is stronger and tougher than structural steel. It resists severe stresses... wear and abrasion... corrosion by practically all alkalis, most acids, salt air and water.

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In short, nobody needs to worry about what's happening to Monel roofing. When you specify Monel, your clients get long-lasting, trouble-free roofing.

**And they get it** at a cost that is within range of even a moderate building budget. First — because the greater strength of Monel makes it safe to use *lighter* gauge sheet. Second—because the easy workability of Monel keeps installation costs low. (A roofing contractor's labor costs for Monel installations are no higher than for those of other quality materials.)

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**LONG-LASTING AND TROUBLE-FREE.** Monel cap flashings installed on roof of Consolidated Edison Company's Sherman Creek Plant in 1913 are still in good condition.

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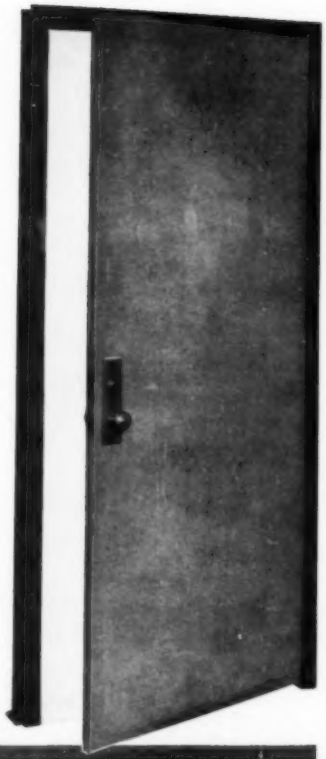

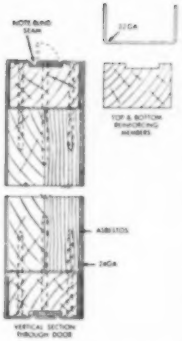


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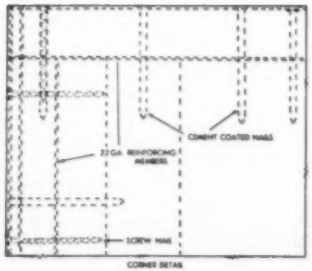


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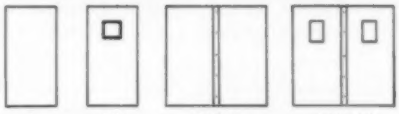


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# out of school

(Continued from page 138)

sion a catholicism of viewpoint which will take into account the wide variety in the size and scope of our diversified programs today and I trust it will not attempt to design a rubber stamp with double action to pass judgment and padlock at the same time.

I hope that you too have found Dr. Burdell's paper stimulating and provocative. I will refer to it again from time to time. In the meantime, I know that you will join with P/A and me in wishing the Commission "God speed" and that you too look forward to its answers to *all* architectural education problems. I look forward to the closing date of this discussion, January 1952, when I give final comment on the Commission's printed report.

---

## NOTICES

### NEW PRACTICES, PARTNERSHIPS

JAMES S. SUDLER, Architect, announces that PAUL W. RADER, Architect, has joined his firm as an associate. New office address: 303 Colorado Bldg., Denver, Colo.

HAROLD R. SLEEPER, CHARLES G. RAMSEY, Architects, and JOANNA K. ARFMAN announce that they will continue the architectural practice of the late FREDERICK L. ACKERMAN, Architect, 25 W. 44 St., New York, N. Y.

ALEX DANIN & KENNETH D. WHEELER announce the formation of a partnership for the practice of architecture under firm name of DANIN & WHEELER, Architects.

ROBERT D. STONE, Architect, 1255 Linwood Blvd., Oklahoma City, Okla.

WILLARD HAWKINS BARROWS, Architectural Specification Writer and Consultant, 104 E. 40 St., New York, N. Y.

LEE BURNS and DAVID V. BURNS, Architects, announce the continuation of their partnership under the name of BURNS AND BURNS, 333 N. Pennsylvania St., Indianapolis, Ind.

TILLMAN SCHEEREN, JR., and WALTER F. RITTENHOUSE announce the formation of a partnership for the practice of architecture under the firm name of SCHEEREN & RITTENHOUSE, Boarts Bldg., 110 N. McKean St., Kittanning, Pa.

WHITNEY R. SMITH and WAYNE R. WILLIAMS announce the formation of a partnership under the name of SMITH & WILLIAMS, Architects, 204 S. Los Robles Ave., Pasadena, Calif.

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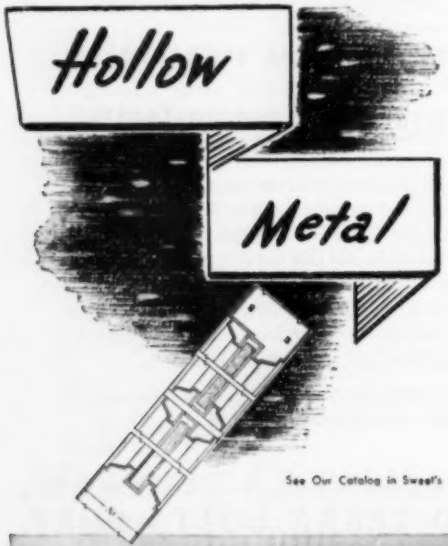


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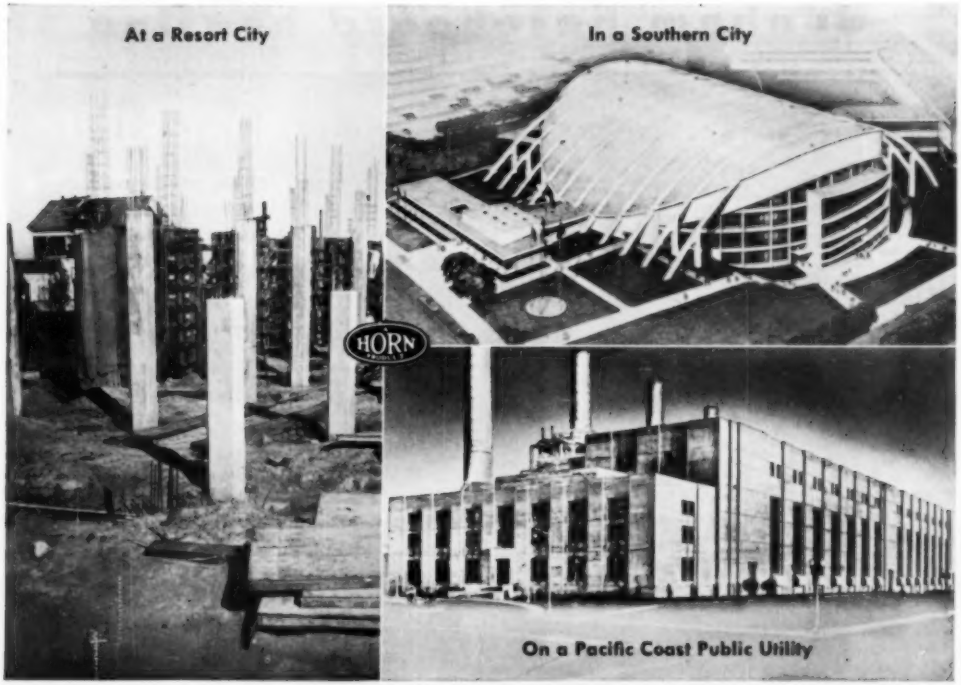


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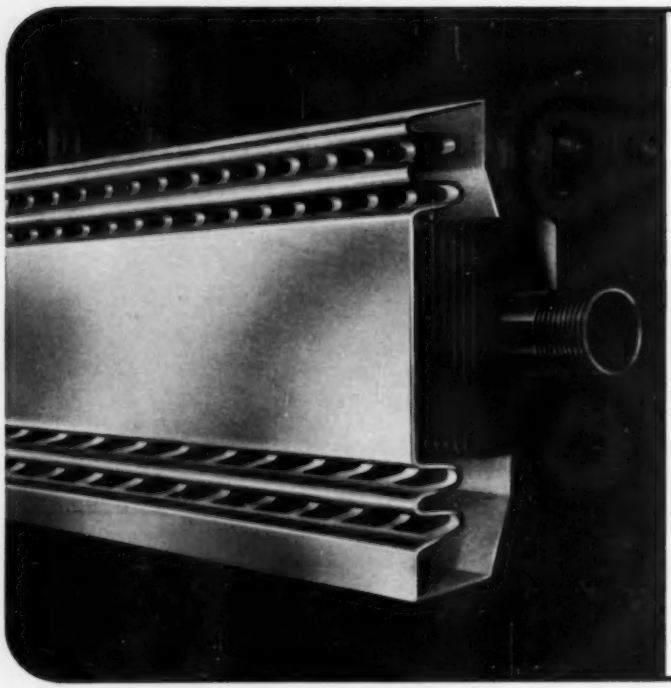

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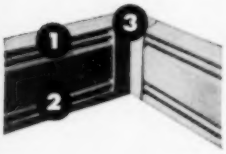


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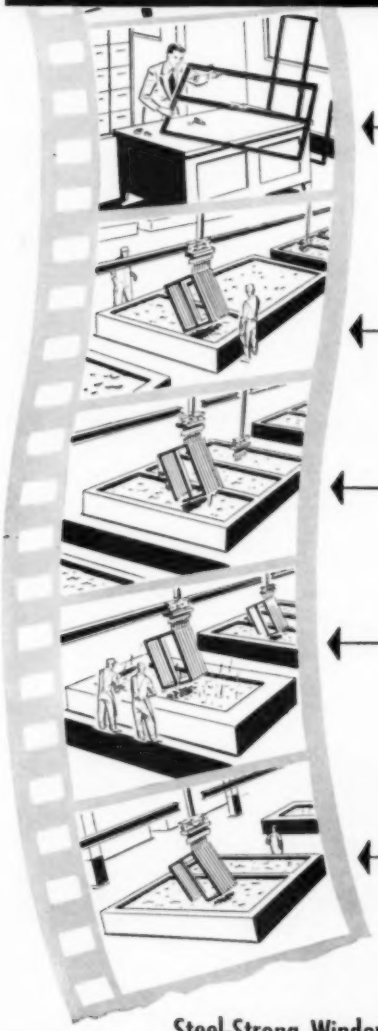

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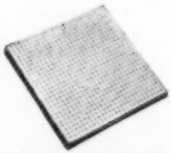
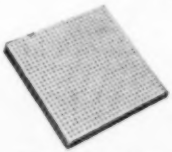
Dominion Sound Equipments, Ltd., Montreal, Quebec, Canada



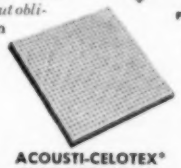
**ACOUSTI-CELOTEX* CANE FIBRE TILE**

A lightweight, rigid unit, combining acoustical efficiency with a durable, smooth surface. Perforations (to within ½" of the back) assure repeated paintability, easy maintenance. Available in a variety of sound-absorbent ratings. Dry rot proofed by exclusive Ferox* process.



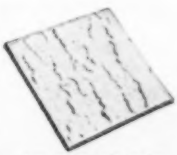
**ACOUSTI-CELOTEX* MINERAL TILE**

Made of mineral fibre, felted with a binder to form a rigid tile with a universal rating of incombustibility. Perforated with small holes extending almost to the back, this tile provides high acoustical absorption plus unrestricted paintability by either brush or spray method.



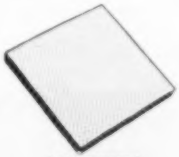
**ACOUSTI-CELOTEX* FLAME-RESISTANT SURFACED TILE**

A cane fibre tile with a flame-resistant surface. This tile meets *Slow Burning* rating contained in Federal Specifications SS-A-118a. It may be washed with any commonly used solution satisfactory for good quality oil-base paint finishes without impairing its flame-resistant surface characteristics and without loss of sound-absorbing capacity. Repainting with Duo-Tex flame-retarding paint will maintain peak efficiency. Supplied in all sizes and thicknesses of regular cane tile.



**ACOUSTI-CELOTEX FISSURETONE***

A totally new mineral fibre acoustical tile. Attractively styled to simulate travertine. It beautifies any interior and effectively controls sound reverberation. Lightweight, rigid and incombustible, it is factory-finished in a soft, flat white of high light-reflection rating.



**ACOUSTEEL***

Combines a face of perforated steel with a rigid pad of sound-absorbing Rock Wool to provide excellent sound-absorption, together with attractive appearance, durability and incombustibility. The exposed surface of perforated steel is finished in baked-on enamel. Acousteel is paintable, washable, cleanable.

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Smart new Trane Unit Ventilators in the Church of the Crucifixion School*, La Crescent, Minnesota provide positive controlled ventilation to classrooms and assure the utmost in efficient, economical operation.

These sturdily built units bring in fresh outdoor air, filter it, warm it, and move it gently to even the remotest corners of the classroom—quietly and without danger of drafts. They supply an abundance of clean, invigorating fresh air, tempered just right for health and comfort, to increase alertness and to help every child enjoy the room where he spends so much of his time.

Trane engineering skill in classroom weather magic has developed smoothly running fans that insure whisper-quiet operation. Scientifically designed air-blocks and dampers positively prevent cold outside air from blowing directly through the unit. Famous Trane Kinetic Orifice coils guard the unit against freezing. Directional flow grilles meet every installation requirement. Generous filters trap dust and dirt.

For simplified maintenance the one-man front panels make the unit easy to "get into" and just as easy to service.

The Trane representative in your area will be glad to show you why Trane Unit Ventilators are being selected for modern schools all over the nation. Contact him for complete information.

**Architect: John J. Flad & Associates, Madison, Wisconsin*
*Contractor: Kletzke Plumbing & Heating, La Crescent, Minn.*

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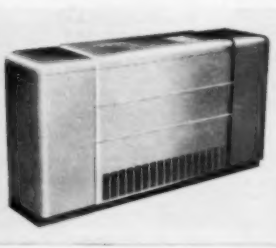
**There are Trane Unit Ventilators for every size room—gymnasium, classroom, auditorium or office. Write for Bulletin S-340 which gives complete information.**



Residence in Chestnut Hill, Philadelphia. Built on site of old Estate, overlooking formal gardens. Architects: Bishop & Wright, Philadelphia. Contractor: Cleveland Yerger & Sons, Philadelphia.

The versatility of Lupton Metal Windows is illustrated in this residence of contemporary design. Windows of the Architectural Projected type with large fixed lights form one wall of each major room, allowing full view of gardens.

Standard open-in ventilators at sill provide uniform all-weather ventilation. Double insulating glass is used throughout. Hardware is simple in design and simple in operation.

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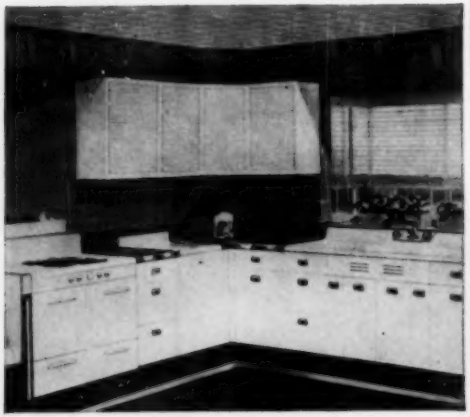

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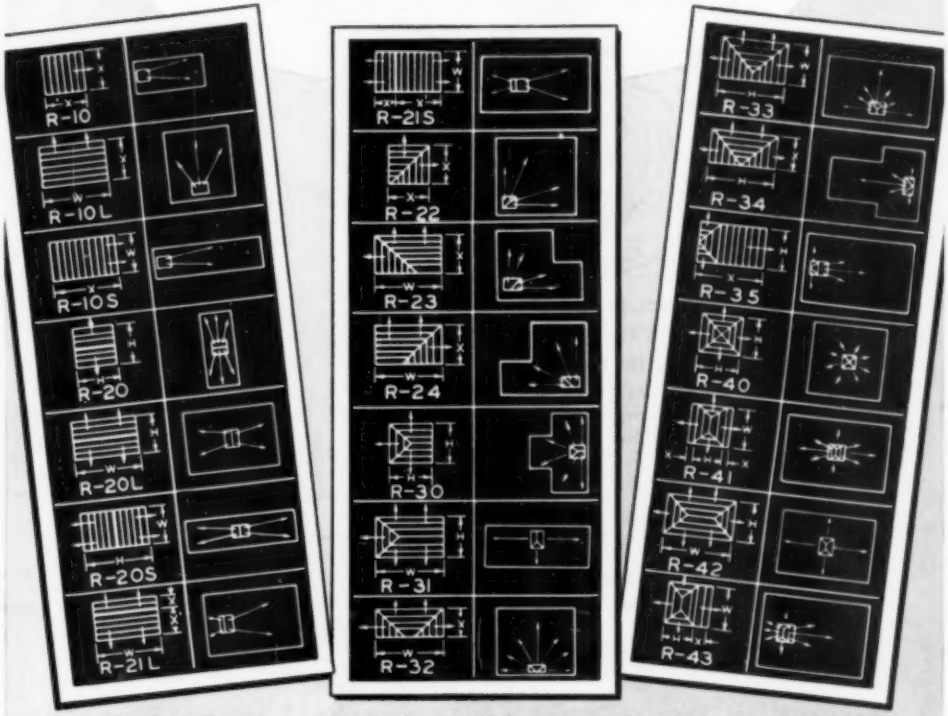


Center of ceiling, off-center . . . sidewall or baseboard? Square, rectangular . . . "L" or "T" shaped? Low ceilings, high ceilings . . . long, narrow or wide corridors? Yes—whatever the air distribution problem, you'll find the answer is Agitair. It's the only diffuser that gives complete freedom of design, yet assures 100% air distribution without the use of makeshift blank-off's or oversized outlets. The applications above give you some idea of the amazing versatility of Agitair square and rectangular air diffusers. You design the room and we'll help select the Agitair pattern most suitable for the location you desire.

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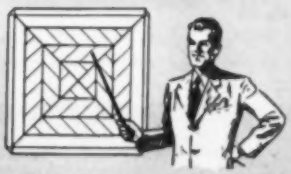

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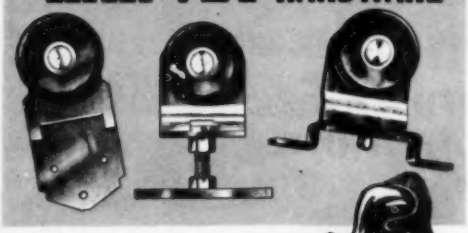

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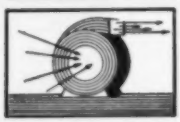
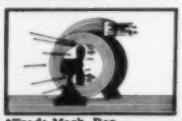
. . . which combines both fan and blower principles. Its exclusive design gives Blo-Fan the volume of a fan plus the power of a blower in order to move more air—quickly, quietly with greater efficiency.





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*A blower draws a smaller amount of air into the vortex, discharging it with great power, thus overcoming resistance. A blower delivers power, but lacks volume.*

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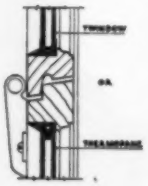


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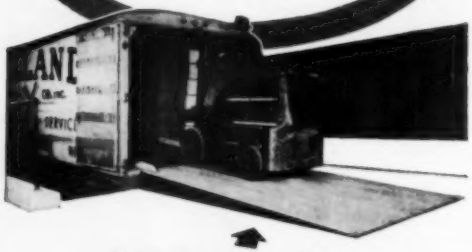

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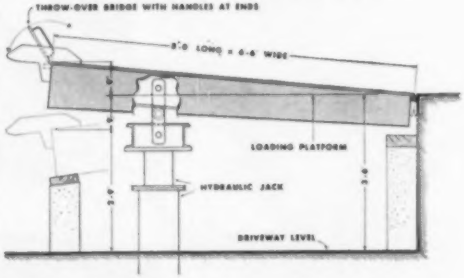


**How the Leva-Dock Operates**

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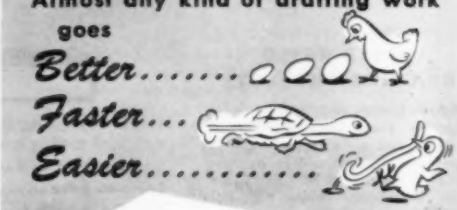

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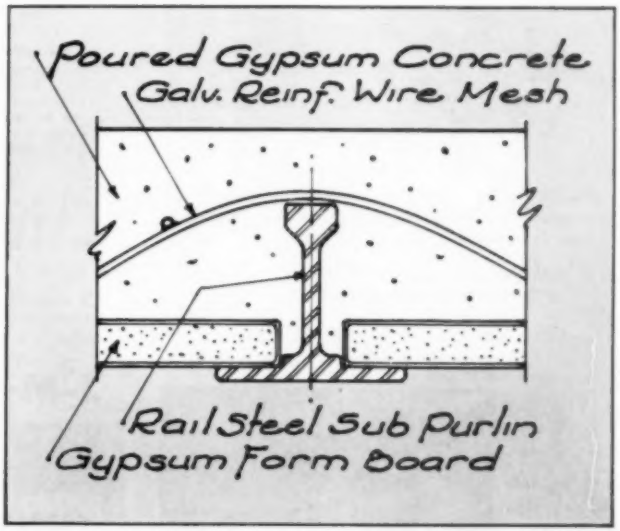


**HERE'S HOW IT WORKS!** Gold Bond Gypsum Form Board, with high-light reflecting under surface, is placed on sub-purlin sections. Gold Bond Gypsum, reinforced by galvanized mesh, is then poured to form a solid, fireproof slab. Gold Bond Insulation Form Board may be used as undersurface where higher insulation values are required.

WHAT more can we possibly say about this amazing roof deck system for industrial and commercial roofs! We can tell you how it cuts days off construction time, how the quick set affords full load capacity within an hour. We can tell you how it won't rot, burn or decay, how tests show that steel embedded in gypsum for 20 years and longer shows no signs of progressive corrosion. Space won't permit us to give you detailed drawings and load tables here, but a postcard addressed to our Buffalo office will bring you prompt and complete information. If you have an unusual engineering or design problem, the engineering facilities of National Gypsum Company are at your disposal.

You'll build or remodel better with **Gold Bond**

*Fireproof Wallboards, Decorative Insulation Boards, Lath, Plaster, Lime, Sheathing, Wall Paint, Rock Wool Insulation, Metal Lath and Sound Control Products.*

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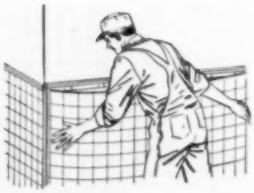
**Get Accurate Results**

**with the right shape for the job!**



Specify nationally-distributed CHROMTRIM metal mouldings and be sure the mechanic will carry out your plans perfectly . . . with more than 200 stock shapes quickly available, including price tag mouldings for stores.

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**Adaptable to any plan**

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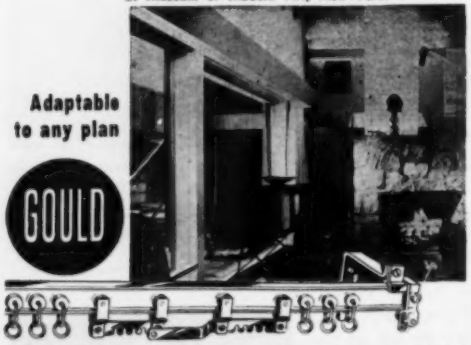

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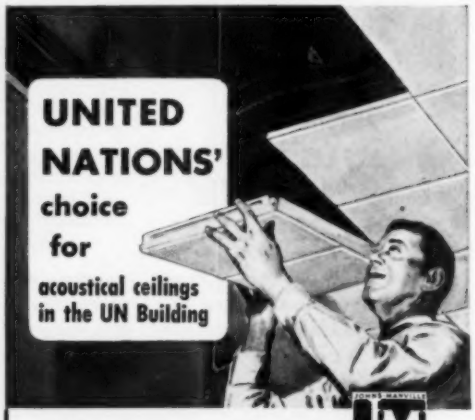


...**because** Sanacoustic Panels have extremely high sound-absorption qualities—and they're noncombustible, demountable, washable. All-metal-and-mineral construction provides numerous other advantages. Write for "Sound Control" brochure. Johns-Manville, Box 290, New York 16, N.Y.

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IT'S EASY TO SEE why glass is so prominent in today's traffic-building storefronts. Glass has a unique combination of characteristics that storefronts require:

**Transparency plus a hard, impervious surface.** Plate Glass is practically immune to weathering—maintains its lustrous beauty and clarity.

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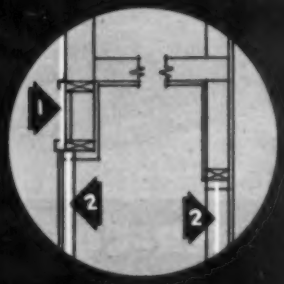
**Color**—*Vitrolite*® glass paneling is made with color all the way through. It doesn't need refinishing and is unaffected by weather.

**Toughness plus transparency**—in clear doors of *Tuf-flex*® tempered plate glass that extend an invitation to enter.

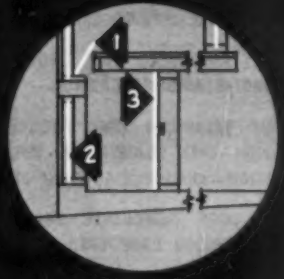
The Visual Front has won its popularity by the beauty of its simplicity and on its merchandising power. For more information on Visual Fronts and on uses of glass in them, write for our new Visual Fronts book.

VISUAL LOF FRONT GLASS

DETAILS FOR YOUR STOREFRONT FILE




Vertical sections through show window.

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2. Polished PLATE GLASS
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MC-105

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# How to make Insulation a Dramatic Feature in your plans . . .

The story of Aluminum's radiant heat reflectivity is challenging, exciting . . . and convincing. Clients like the idea of this modern "miracle" inside their walls and attics, under the floor joists of unheated crawl spaces. They talk about BTU's bouncing off the aluminum . . . up to 95% of all radiant heat.

Technically, it's a sound specification . . . providing the perfect vapor barrier together with high insulating efficiency. Under floor joists, one layer of Type B (foil two sides) has a conductance coefficient of approximately 0.10—meets FHA requirements in most areas. Over ceilings or under rafters, one layer of Type B is excellent to take off summer sun load; two reflective-faced air spaces give you a conductance of approximately 0.14; or the single foil face (Type C) may be used with blanket insulation. In side walls, Type B bowed between studs provides extremely high efficiency at low cost . . . see diagrams below.

Turn the prosaic subject of insulation into a *Sales Feature* . . . with Reynolds Aluminum Reflective Insulation. Write for folder in A.I.A. file form. **Reynolds Metals Company,** Building Products Section, Louisville 1, Ky. Offices in 32 principal cities.

## REYNOLDS ALUMINUM REFLECTIVE INSULATION

Aluminum foil bonded to one side (Type C) or both sides (Type B) of tough kraft paper. Special pressure-embossing strengthens the bond and produces a handsome pattern effect. Clean, odorless, pliable, fire-retardent. Easy to cut, bend, tack or staple. In boxed rolls of 250 square feet, 25", 33" and 36" wide. Rolls weigh 15 lbs.

*Also board types,* for use as exposed wall and ceiling material. This is aluminum foil bonded to one or both sides of 15-pt. cardboard. Supplied in 25" and 17" widths, in rolls of 2,000 square feet.

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS Lifetime ALUMINUM BUILDING PRODUCTS

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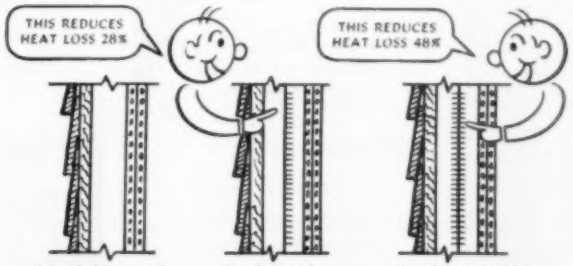


**Wood siding and frame, uninsulated —overall heat loss 0.25 BTU/hr/°F.**

**One layer of single-faced foil —overall heat loss 0.18 BTU/hr/°F.**

**One layer double-faced foil insulation —overall heat loss 0.13 BTU/hr/°F.**

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Find out first hand how he can save you time, and help you do a better job for your clients—without any charge or obligation.

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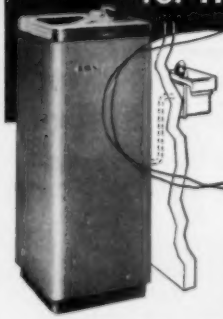

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*Northern Hard Maple Floor of the shipping room, area 238,900-square-foot Montebello (Los Angeles) plant of Helms Bakeries. This shows part of the nearly three acres of MFMA Northern Hard Maple Floor in this "clean-lined" bakery. Ellis Wing Taylor was the architect-engineer, C. L. Peik the general contractor.*

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—**E. F. Sperling,** Director of Engineering, Helms Bakeries

When Helms Bakeries executives put their okay on the plans for this new plant, they knew from long experience, how well the vast areas of glistening-clean Northern Hard Maple Floors would serve them. They knew that neither nature nor man has yet produced another floor material so nearly perfect. Merchants, manufacturers, school authorities, home owners, by tens of thousands, know this, too. They esteem Northern Hard Maple for its lifetime endurance, its ever-modern beauty, its cheerful brightness, its permanent ease of cleaning and maintenance and the *resilience* that makes it so pleasant to stand on, walk on, work on, play on. **MFMA** is Northern Hard Maple Flooring at its splendid best—backed by rigid association grading supervision. It's plentiful again. Specify it where your judgment dictates, in fullest confidence of quality, economy and delivery-per-schedule. For catalog data, see Sweet's Arch. 13/g/6—Eng., 4/5/22. Write for latest listing of all the many **MFMA**-approved floor finishing products and processes.

**SCHOOLS**—*As, for instance, this classroom in MFMA Maple, Chicago Vocational School.*

**STORES**—*Such as Hallowell Seed Co., San Francisco; by Architect Raphael S. Soriano.*

**HOMES**—*As this one in Bangor, Me.; by Architects Eaton W. Tarbell & Associates.*

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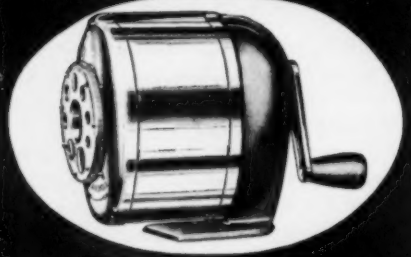

**PENCIL SHARPENER PERFORMANCE**

The Tinius Olsen Testing Machine Company, Willow Grove, Pa., recently made a test of pencil sharpeners. We publish the clean cut facts because they so clearly stand back of your good judgement in choosing Boston Pencil Sharpeners. Write for your copy of Clean Cut Facts; it will answer any question you may have on pencil sharpener performance.

**C. HOWARD HUNT PEN CO., CAMDEN, N. J.**

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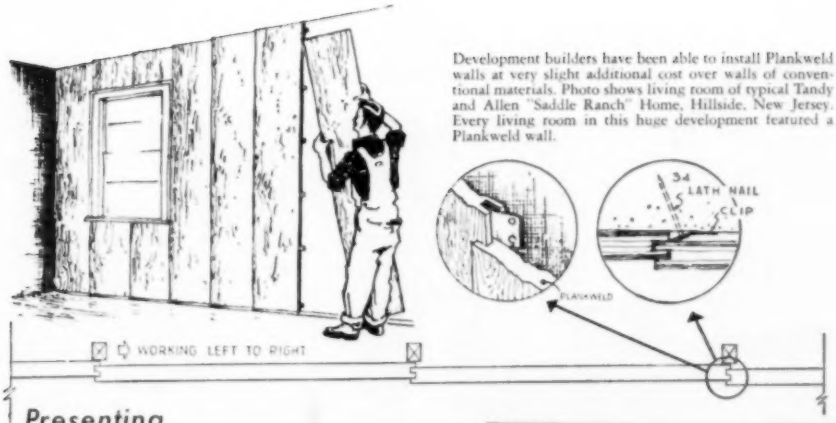


Development builders have been able to install Plankweld walls at very slight additional cost over walls of conventional materials. Photo shows living room of typical Tandy and Allen "Saddle Ranch" Home, Hillside, New Jersey. Every living room in this huge development featured a Plankweld wall.

*Presenting*

# PLANKWELD

**—a new prefinished Weldwood Plywood now available in low-cost, easily handled panels.**

**Rapid installation and elimination of all finishing costs makes Plankweld the lowest cost hardwood paneling now available.**

Plankweld can be installed with the panels overlapping in either direction, left or right. After the first panel is installed by means of the special metal clips, the next is slipped into place, starting at the top as shown.

### *DESCRIPTION*

| | |
|---|---|
| Construction: | ¼" plywood, 3-ply, on hardwood cores. Grooved on two long edges. |
| Wood species: | Sliced Oak and Birch. |
| Size: | 16¼" wide by 8 ft. long. |
| Finish: | Prefinished at mill; "pickled" lacquer finish, 3 coats, final coat hand-rubbed. |
| Packing: | 10 panels per carton; necessary installation clips included in each carton. |

### *FEATURES*

No additional finishing; panels are ready for erection.

Plankweld is removable.

Quick installation; panels easily handled.

Special clips eliminate practically all face-nailing.

Can be installed over old plaster or other walls without furring strips.

Fits on 16" studs in new construction.

Provides attractive shadow lines.

May be used vertically or horizontally.

Plankweld, either full width or ripped, can be used for base, ceiling molding, and other trim.

### *HOW TO SPECIFY:*

Birch (or Sliced Oak) Plankweld paneling, as manufactured by United States Plywood Corporation.

*Installation folder* with further information on request. Please use coupon.

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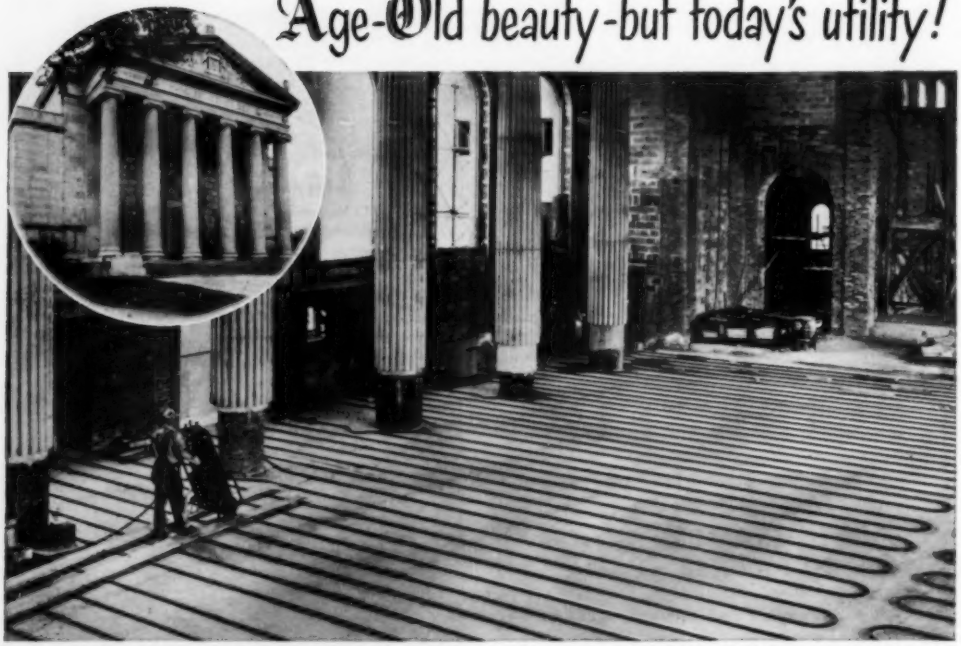
# Age-Old beauty-but today's utility!



## *For radiant heated churches, steel pipe is first choice*

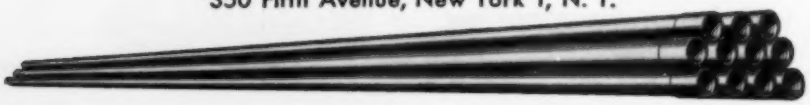
The inspiration of religion upon the lives of men has been reflected down the centuries, in the beauty and perfection of our houses of worship. Be it a cathedral or a "little brown church in the vale" the traditions of architectural purity have been carried on by succeeding generations.

In the preservation of this age-old beauty, even concessions to the use of modern conveniences and facilities can be harmoniously achieved. Among heating systems, for example, none is more adaptable for this purpose than modern *radiant* heating. Comfortable warmth from concealed sources helps to maintain the simple, dignified atmosphere. Large areas can be heated uniformly. Decorating and cleaning costs are minimized.

Just as radiant heating blends comfort with beauty, so steel pipe blends durability with economy. That's why steel pipe is first choice for radiant systems in churches, public buildings, plants and warehouses as well as homes. It is natural that it should be so. For more than 60 years steel pipe has a record of proved performance in conventional steam and hot water heating systems.

*Partial view of side and bell tower, while under construction, of St. Ann's Church, Cleveland, O. Radiant heating, with steel pipe will provide complete comfort without marring interior beauty.*

**COMMITTEE ON STEEL PIPE RESEARCH**
AMERICAN IRON AND STEEL INSTITUTE
350 Fifth Avenue, New York 1, N. Y.



# SELECTED PRODUCERS' BULLETINS

● To meet a continuing demand for wood elevator cars and doors, the Otis Elevator Company has resumed production of these items in an architectural wood working shop which has been set up in Harrison, New Jersey. Company officials declare that the wood shop, which is equipped with the most modern wood cutting and wood processing machinery, represents the final step in full production facilities to supply a complete line of cars and doors constructed of wood and laminated plastics as well as of metal. One of the major shop operations is the fabricating of veneer-faced plywood panels. Eight veneers, made from both domestic and imported hardwoods, will be stocked and made available as standard for all car designs. They are African mahogany, quartered, figured ribbon strips; Honduras mahogany, flat, figured; American walnut, quartered, plain pencil stripe; American walnut, flat, figured; primavera, quartered; cherry, flat, figured; aspen, flat, figured; and oak, rift, comb grain.

Otis wood cars are designed for the specific type and use of building. The wood walls are combined with other materials and accessories required for each type of installation. Hospital cars have rubber or stainless steel wainscots, designed to withstand the bumping and scuffing of stretchers and food carts; the ceiling is insulated with sound-deadening material. Department store cars are fitted out with illuminated store directories that are incorporated into the design of the car itself. Many forms of direct and indirect lighting are used. Mechanical ventilation, consisting of a plenum chamber and blower, is available with most designs.

Car designs for apartment houses, hotels, office and public buildings, loft buildings, hospitals, shops, department stores, and residences will be furnished as standard; in addition, special cars made of combination wood and metal, plastics and other laminated materials are also being manufactured in the Harrison plant.

● A high quality plastic electrical insulation which will not support combustion has been developed by E. I. du Pont de Nemours and Company, Inc., and is now available to the wire and cable and electrical industries as "Rulan" flame-retardant plastic.

Tests with Rulan have shown that it will not burn after the flame has been removed; neither will it drip when in a melted state—a further advantage since hot plastic drippings are likely to start other fires. Its electrical properties are comparable to those of polythene, which is one of the best insulating materials known, particularly in high-frequency electrical applications. It is nontracking and retains its electrical properties after immersion in water for long periods at elevated temperatures.

Although Rulan is still limited in availability, laboratory and field tests have revealed its wide use as electrical insulation where flammability is a factor, such as insulation for high-voltage hook-up, signal-control, television lead-in, and flame-retardant line wires, and for neon-sign, multi-conductor control, and high voltage street-lighting cables.

Rulan plastic can be extruded on to wire at high speeds. It can also be injection molded. Molded electrical parts and extruded electrical tape are being developed for use where fire hazards are a consideration.

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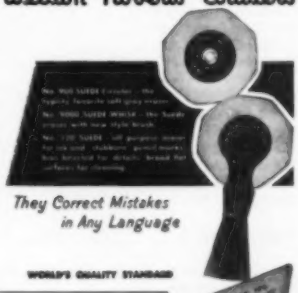

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# P.S.

Minneapolis-Honeywell recently ran a press party to stop all press parties. (I hope not.) Using their own DC-3, they flew a group of editors and news association writers from New York and Chicago to Minneapolis, for a four day jaunt. The profit from the trip was two-fold: a technical session on problems of heating controls, with special attention paid to residential zoning possibilities; and several trips around Minneapolis and its suburbs to see houses designed by local architects, selected by Roy Jones and Rhodes Robertson of the University of Minnesota architectural school, and just coincidentally embodying the best features of well-controlled zoned residential heating. Net result: much excellent food and drink, some good architecture and some bad architecture visited, hilarious good company, a better knowledge of the problems of residential heat control, a trip on the yacht of Cedric Adams, that fabulous Minneapolis Star and Tribune columnist, with Adams acting as bartender, an opportunity to know well many of the Minneapolis-Honeywell executives (as well as a number of the Carl Byoir executives) and a chance to discuss mutual problems with a number of brother and sister editors. Other manufacturers please note. If desired, I can supply a list of cities I would like to visit.

The pilot of the plane which took us out, whom I'm afraid I remember only as Max, plans a quiet little vacation trip of his own. He is going to fly from Minneapolis to Switzerland to visit his wife and nine children—in a Piper Cub. Explaining several aspects of the situation in one terse statement, he said, "I like to be alone."

●

It wouldn't be fair to anyone for me to comment critically on the houses we saw, but I think I dare say that Long & Thorshov's Blackmun residence appealed to me more than any other. That firm does seem to keep cooking. The pleasantest visit was to Carl Graffunder's own house, which he is largely building himself. Not only is it good architecture and good sense; Carl also makes excellent iced tea. Furthermore I have never seen an architect display his wares so modestly to a group of consumer magazine editors—Elizabeth Gordon, John Normile, Sandy Knowlton, Bill Melhorn, and the others were as charmed by his attitude as by his architecture.

At the fabulous house designed for John Rood, the sculptor, by Rhodes Robertson and Elizabeth and Winston Close, we were entertained graciously by Mr. Rood, who showed us proudly through the house. Many of the visiting delegation were most impressed by the closet and storage space available for specific purposes. One of the Byoir boys rejoined the group at a certain point with a slightly dazed expression and said, "My God—he's got a whole big closet down stairs just to store Christmas tree ornaments!"

Blackmun House. Long & Thorshov, Architects.

●

I stopped in at one of Sachs Quality Stores the other day to see how they were handling the line of contemporary furniture that had been selected in the Museum of Modern Art's recent competition. The pieces are well displayed and seem to be attracting attention and sales, but some of the salesmen are obviously baffled. An elderly woman clutching an umbrella and wearing galoshes almost up to her knees was sitting in an Eames rocker to make a subject that Steinberg would have loved; she wanted assurance that this was truly modern furniture which her grandchildren would like for their new home. "Lady," the clerk said, "this is as modern as it comes. This was designed for us specially by the Modern Museum of Natural History." I didn't stay to see whether he made the sale.

●

I've just been talking to an architect who is going through a frustrating experience with his local Housing Authority. Along with other architects in his town he was awarded an FPHA housing job and at the same time was handed a site plan and basic apartment layouts which he was simply supposed to "draw up." The scheme was the usual tight-court arrangement, with traffic roads cutting all through the potentially fine property. Being a designer with both imagination and convictions, this architect set to work to improve the suggested layout, and came up with a scheme much more open, with less land coverage, with traffic and parking confined to the perimeter—and, as an extra added inducement, a 20% lower construction estimate. Was the Housing Authority pleased to have this gratuitous proposal of a better group of buildings, better sited, lower in cost? Not on your life. The Authority is using every possible argument against it, and withholding approval while the other architects' developments of the Authority's preliminary layouts are all being approved without question.

Graffunder House. Carl Graffunder, Architect.

I realize that this is not an unusual experience. I have heard of the same thing happening in other cities; a preconceived plan developed by a technical staff member in a local bureau often becomes so sacred that it is irreverent if not sacrilegious to suggest even minor changes. And yet those very schemes — local "standards" — should and must be questioned continually if there is to be progress, in housing design or any other kind of design.

What does the architect do in a case like that? Is it unethical for him to stir up discussion—preferably favorable discussion, but in any case good hearty talk—around town and in the press? I don't think so. I believe it was Catherine Bauer who said that planning is politics. Support for a defensible architectural idea which might otherwise be quietly shoved aside has to be found, sometimes, in a political manner. One of the local papers (usually an enterprising reporter on one of the local papers) might very well be persuaded to play it up. The matter of economy is always good copy, and it should be possible to get quotes from other Housing Authorities in other cities, from architects who had designed buildings one way or the other, from housing specialists, on the advantages and disadvantages and experiences sad and happy with both schemes.

A little more of this sort of fighting for what one believes is right, it seems to me, would do the architectural profession a lot of good. For one thing, one can't fight unless one has convictions and an issue, and conversely, if one fights for convictions and an issue the public will say in time, "That man (or those men, the architects) really is a sincere person, trying to do a job for our fair city. He seems to know what he's talking about. Better pay some attention to him."

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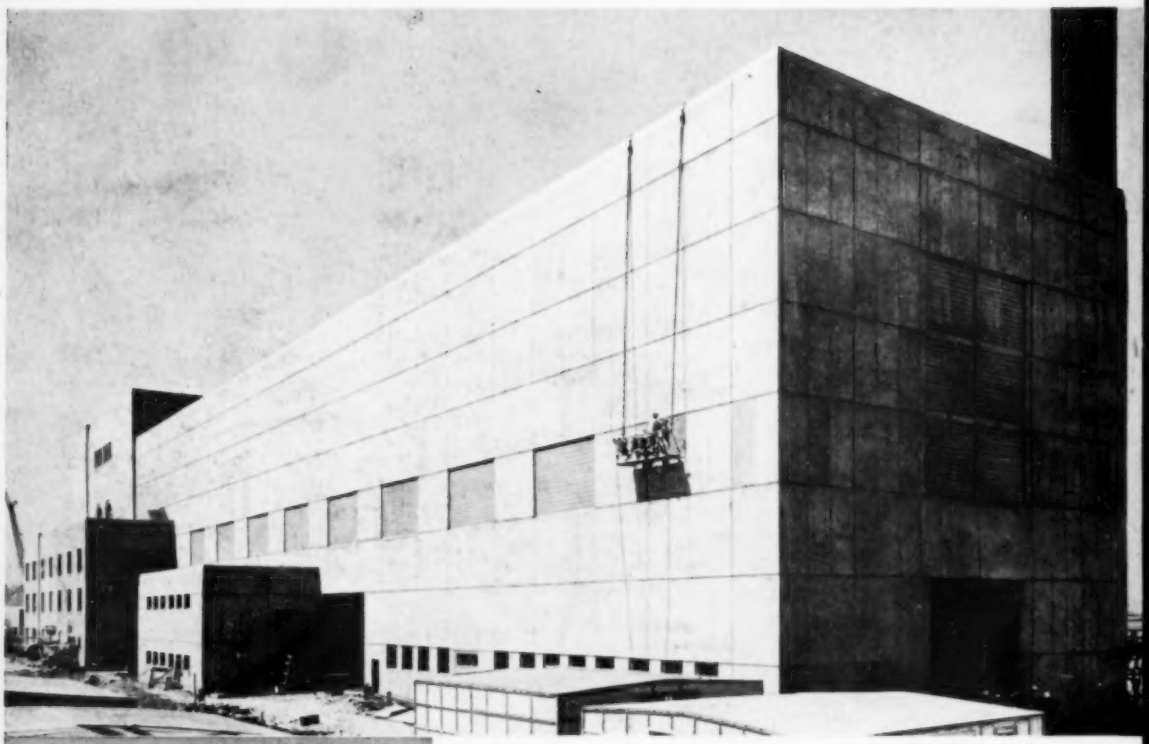

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